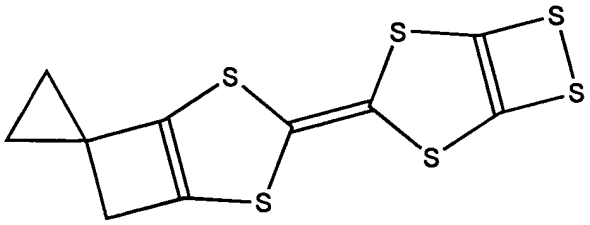


bis-ethylene dithio tetrathiafulvalene

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FILE 'REGISTRY' ENTERED AT 09:36:20 ON 27 JUL 2006
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FILE LAST UPDATED: 26 Jul 2006  (20060726/ED)

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 substance identification.

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L1              STR
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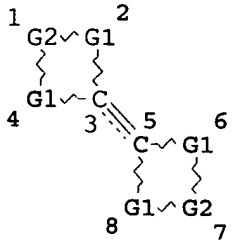

query covers all claims
15,901 structures

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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE

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| L3 | | SCR 1337 OR 1311 OR 1314 |
| L4 | | SCR 1926 AND 2019 |
| L5 | | SCR 1935 AND 2019 |
| L6 | 15901 | SEA FILE=REGISTRY SSS FUL L1 AND L2 AND (L4 OR L5 OR L3) |
| L7 | 10839 | SEA FILE=HCAPLUS ABB=ON L6 |
| L8 | 525 | SEA FILE=HCAPLUS ABB=ON L7 AND (CATHODE? OR ANODE? OR ELECTRODE?) |
| L9 | 203 | SEA FILE=HCAPLUS ABB=ON L8 AND DEV/RL |
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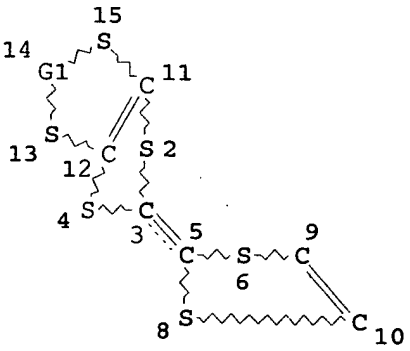
| L12 | | STR |



Subset for formula 4
3,558 structures
4,108 CA references
had to limit by utility

REP G1=(1-5) CH2
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 13

STEREO ATTRIBUTES: NONE

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L28          37 SEA FILE=HCAPLUS ABB=ON  L11 OR L27
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37 CA references on all formulas with utility

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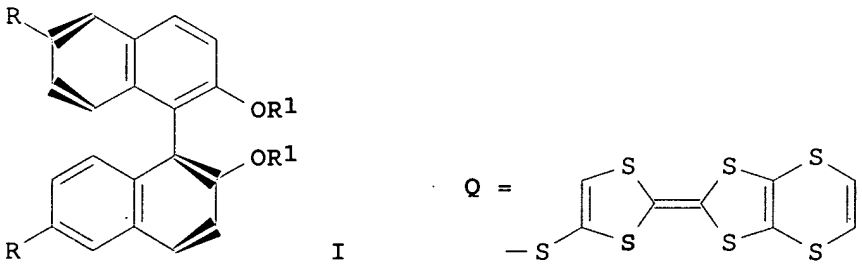
L28 ANSWER 1 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2006:106021 HCAPLUS
DN 144:330951
TI Binaphthalene Molecules with Tetrathiafulvalene Units: CD Spectrum Modulation and New Chiral Molecular Switches by Reversible Oxidation and Reduction of Tetrathiafulvalene Units
AU Zhou, Yucheng; Zhang, Deqing; Zhu, Lingyun; Shuai, Zhigang; Zhu, Daoben
CS Organic Solids Laboratory, Center for Molecular Sciences, Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China
SO Journal of Organic Chemistry (2006), 71(5), 2123-2130
CODEN: JOCEAH; ISSN: 0022-3263
PB American Chemical Society
DT Journal
LA English
GI

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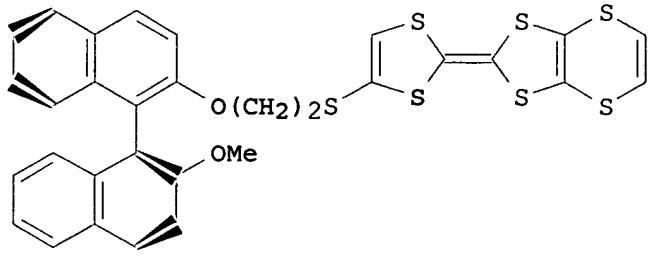



II

AB By combining the features of binaphthalene and tetrathiafulvalene (TTF), compds. I [R = H, R1 = O(CH2)2Q, O(CH2)6Q; R = QCH2, R1 = O(CH2)6Q, OEt] were designed for studies of chiral mol. switches. Absorption and CD spectral studies clearly indicate that the CD spectra resulting from axial

chiral binaphthalene units can be modulated through the redox reactions of TTF units, which means new chiral mol. switches can be established from binaphthalene mols. with TTF units. The reference compound II, which has one TTF unit rather than two as in the case of compds. I, failed to show such property, hinting that the presence of two or more TTF units is required for the realization of CD spectrum modulation. The manner of the CD spectrum modulation is dependent on the way TTF units are linked to the binaphthalene skeleton, in terms of the linker length, the positions for substitution, and the number of TTF units.

CC 22-7 (Physical Organic Chemistry)
Section cross-reference(s): **72**, 73, 74, 76

ST binaphthalene mol tetrathiafulvalene CD modulation chiral switch oxidn redn

IT Circular dichroism
Conformation
Cyclic voltammetry
Density functional theory
Optical modulation
Optical switches
Oxidation
Oxidation, electrochemical
Redox reaction
Reduction
Reduction, electrochemical
Rotamers
Supramolecular structure
Total energy
UV and visible spectra
(CD spectrum modulation and chiral mol. switches by reversible oxidation and reduction of tetrathiafulvalene units in binaphthalene mols.)

IT Bond angle
(dihedral; CD spectrum modulation and chiral mol. switches by reversible oxidation and reduction of tetrathiafulvalene units in binaphthalene mols.)

IT Design
Engineering
(mol.; CD spectrum modulation and chiral mol. switches by reversible oxidation and reduction of tetrathiafulvalene units in binaphthalene mols.)

IT Apparatus
(nanodevices, switches; CD spectrum modulation and chiral mol. switches by reversible oxidation and reduction of tetrathiafulvalene units in binaphthalene mols.)

IT Molecular structure
(optimized; CD spectrum modulation and chiral mol. switches by reversible oxidation and reduction of tetrathiafulvalene units in binaphthalene mols.)

IT Molecular electronic devices
(switches; CD spectrum modulation and chiral mol. switches by reversible oxidation and reduction of tetrathiafulvalene units in binaphthalene mols.)

IT **880869-77-2P 880869-79-4P 880869-81-8P**
**880871-04-5P**
RL: CPS (Chemical process); **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(CD spectrum modulation and chiral mol. switches by reversible oxidation and reduction of tetrathiafulvalene units in binaphthalene mols.)

IT 880550-98-1 880869-96-5

RL: CPS (Chemical process); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); FORM (Formation, nonpreparative); PROC (Process); RACT (Reactant or reagent)
(CD spectrum modulation and chiral mol. switches by reversible oxidation and reduction of tetrathiafulvalene units in binaphthalene mols.)

IT 13537-24-1, Ferric perchlorate
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(CD spectrum modulation and chiral mol. switches by reversible oxidation and reduction of tetrathiafulvalene units in binaphthalene mols.)

IT 540-51-2, 2-Bromoethanol 4286-55-9, 6-Bromo-1-hexanol 10035-10-6, Hydrogen bromide, reactions 18531-94-7 30525-89-4, Paraformaldehyde 204922-79-2 503302-37-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(CD spectrum modulation and chiral mol. switches by reversible oxidation and reduction of tetrathiafulvalene units in binaphthalene mols.)

IT 79547-82-3P 176437-71-1P 880869-84-1P 880869-85-2P 880869-87-4P 880869-89-6P 880869-91-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(CD spectrum modulation and chiral mol. switches by reversible oxidation and reduction of tetrathiafulvalene units in binaphthalene mols.)

IT 603-35-0, Triphenylphosphine, reactions 1972-28-7, DEAD 7789-60-8, Phosphorus tribromide 21351-79-1, Cesium hydroxide
RL: RGT (Reagent); RACT (Reactant or reagent)
(CD spectrum modulation and chiral mol. switches by reversible oxidation and reduction of tetrathiafulvalene units in binaphthalene mols.)

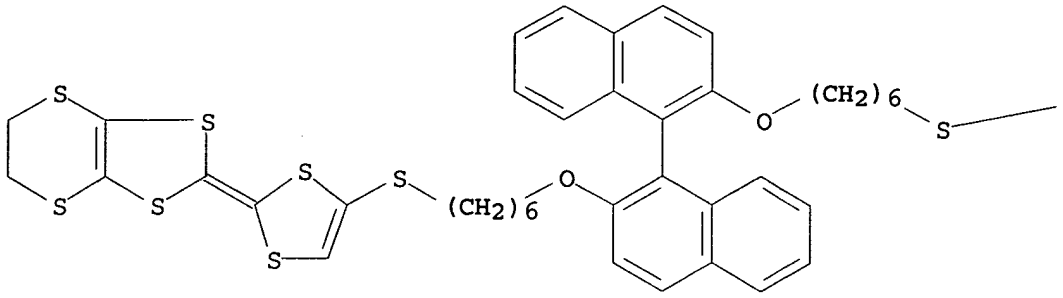
IT **880869-83-0P**
RL: CPS (Chemical process); **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(reference compound; CD spectrum modulation and chiral mol. switches by reversible oxidation and reduction of tetrathiafulvalene units in binaphthalene mols.)

IT **880869-77-2P 880869-79-4P 880869-81-8P 880871-04-5P**
RL: CPS (Chemical process); **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(CD spectrum modulation and chiral mol. switches by reversible oxidation and reduction of tetrathiafulvalene units in binaphthalene mols.)

RN 880869-77-2 HCAPLUS

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2,2'-[(1R)-[1,1'-binaphthalene]-2,2'-diylbis(oxy-6,1-hexanediylthio-1,3-dithiol-4-yl-2-ylidene)]bis[5,6-dihydro- (9CI) (CA INDEX NAME)

PAGE 1-A



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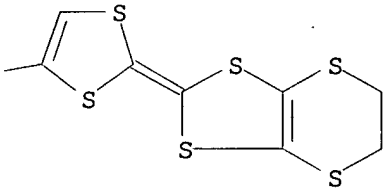
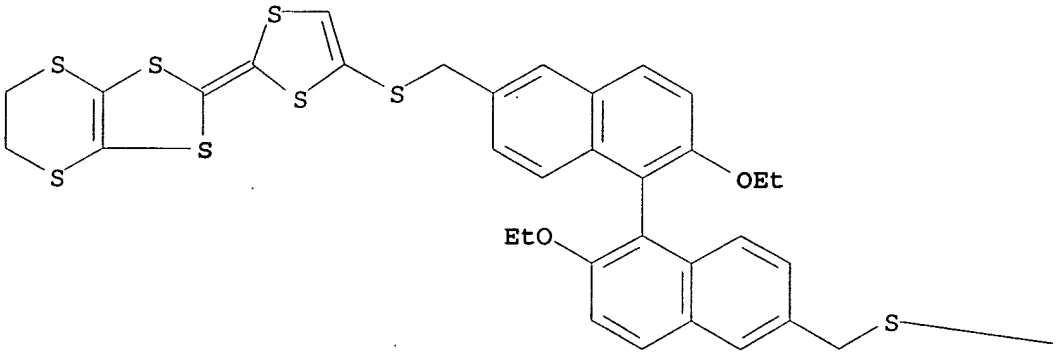


RN 880869-79-4 HCAPLUS
CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2,2'-[[(1R)-2,2'-diethoxy[1,1'-binaphthalene]-6,6'-diyl]bis(methylenethio-1,3-dithiol-4-yl-2-ylidene)]bis[5,6-dihydro- (9CI) (CA INDEX NAME)

PAGE 1-A



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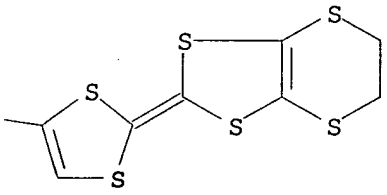
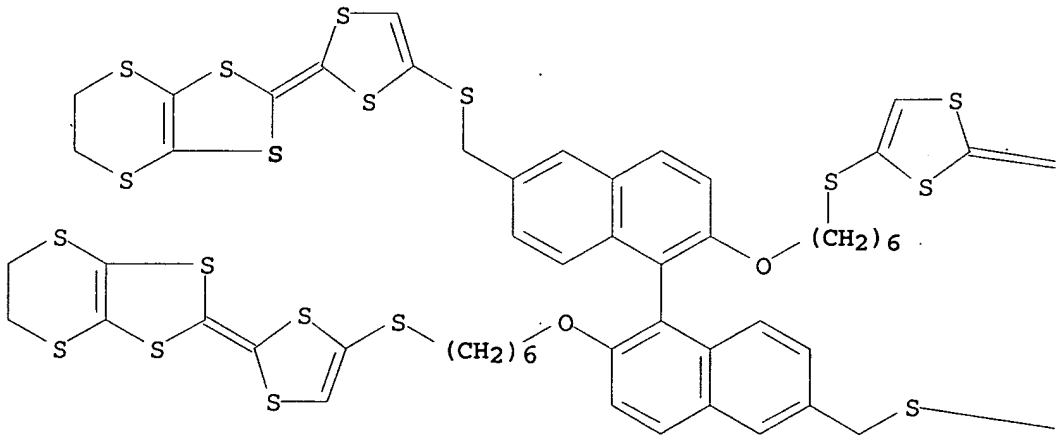


RN 880869-81-8 HCAPLUS
CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2,2'-[[(1R)-2,2'-bis[[6-[[2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-1,3-dithiol-4-yl]thio]hexyl]oxy][1,1'-binaphthalene]-6,6'-diyl]bis(methylenethio-1,3-dithiol-4-yl-2-ylidene)]bis[5,6-dihydro- (9CI) (CA INDEX NAME)

PAGE 1-A



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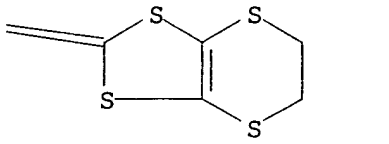
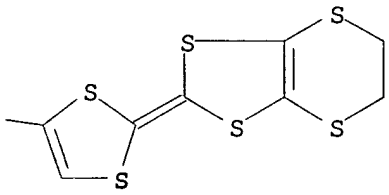
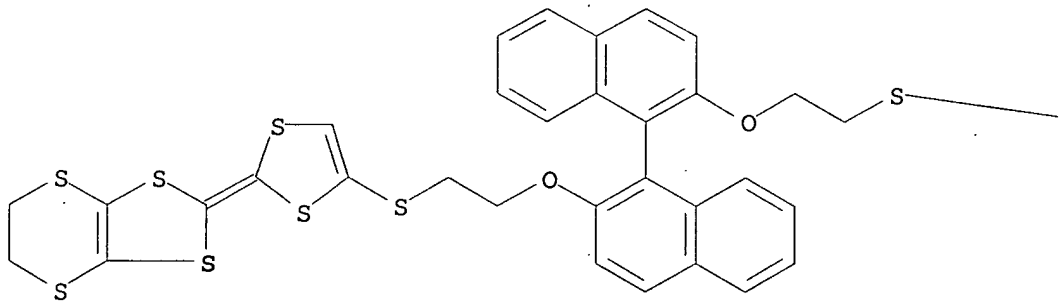




RN 880871-04-5 HCAPLUS
CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2,2'-[(1R)-[1,1'-binaphthalene]-2,2'-diylbis(oxy-2,1-ethanediylthio-1,3-dithiol-4-yl-2-ylidene)]bis[5,6-dihydro- (9CI) (CA INDEX NAME)

PAGE 1-A



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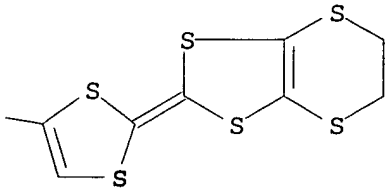
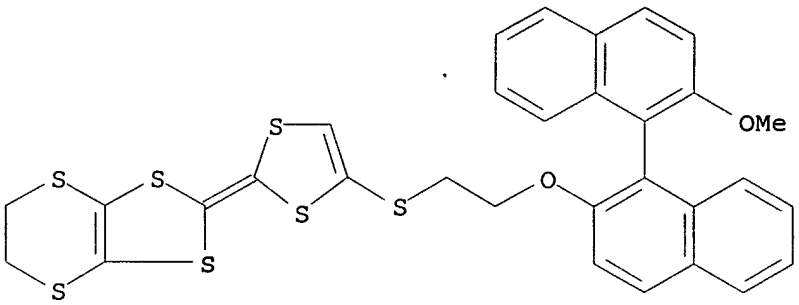


IT **880869-83-0P**
RL: CPS (Chemical process); **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(reference compound; CD spectrum modulation and chiral mol. switches by

reversible oxidation and reduction of tetrathiafulvalene units in binaphthalene mols.)

RN 880869-83-0 HCAPLUS

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 5,6-dihydro-2-[4-[[2-[[(1R)-2'-methoxy[1,1'-binaphthalen]-2-yl]oxy]ethyl]thio]-1,3-dithiol-2-ylidene]-(9CI) (CA INDEX NAME)




RE.CNT 98 THERE ARE 98 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 2 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2006:14962 HCAPLUS

DN 144:253762

TI Ground-state equilibrium thermodynamics and switching kinetics of bistable rotaxanes switched in solution, polymer gels, and molecular electronic devices

AU Choi, Jang Wook; Flood, Amar H.; Steuerman, David W.; Nygaard, Sune; Braunschweig, Adam B.; Moonen, Nicolle N. P.; Laursen, Bo W.; Luo, Yi; DeIonno, Erica; Peters, Andrea J.; Jeppesen, Jan O.; Xu, Ke; Stoddart, J. Fraser; Heath, James R.

CS Division of Chemistry and Chemical Engineering (127-72), California Institute of Technology, Pasadena, CA, 91125, USA

SO Chemistry--A European Journal (2005), Volume Date 2006, 12(1), 261-279
CODEN: CEUJED; ISSN: 0947-6539

PB Wiley-VCH Verlag GmbH & Co. KGaA

DT Journal

LA English

AB We report on the kinetics and ground-state thermodn. associated with electrochem. driven mol. mech. switching of three bistable rotaxanes in acetonitrile solution, polymer electrolyte gels, and mol.-switch tunnel junctions (MSTJs). For all rotaxanes a π-electron-deficient cyclobis(paraquat-p-phenylene) (CBPQT4+) ring component encircles one of two recognition sites within a dumbbell component. Two rotaxanes (RATTF4+ and RTTF4+) contain tetrathiafulvalene (TTF) and 1,5-dioxynaphthalene (DNP) recognition units, but different hydrophilic stoppers. For these rotaxanes, the CBPQT4+ ring encircles predominantly (> 90 %) the TTF unit at equilibrium, and this equilibrium is relatively temperature independent. In the third rotaxane (RBPTTF4+), the TTF unit is replaced by a π-extended analog (a bispyrrolotetrathiafulvalene (BPTTF) unit), and the CBPQT4+ ring encircles almost equally both recognition sites at equilibrium This equilibrium exhibits strong temperature dependence. These thermodn. differences were rationalized by reference to binding consts. obtained by isothermal titration calorimetry for the complexation of model guests by the CBPQT4+ host in acetonitrile. For all

bistable rotaxanes, oxidation of the TTF (BPTTF) unit is accompanied by movement of the CBPQT4+ ring to the DNP site. Reduction back to TTF0 (BPTTF0) is followed by relaxation to the equilibrium distribution of translational isomers. The relaxation kinetics are strongly environmentally dependent, yet consistent with a single electromech.-switching mechanism in acetonitrile, polymer electrolyte gels, and MSTJs. The ground-state equilibrium properties of all three bistable rotaxanes were reflective of mol. structure in all environments. These results provide direct evidence for the control by mol. structure of the electronic properties exhibited by the MSTJs.

CC 22-12 (Physical Organic Chemistry)
Section cross-reference(s): 72

ST switching kinetics bistable rotaxanes conformer equil thermodn MSTJ

IT Amphoteric materials
(amphiphilic; ground-state equilibrium thermodn. and switching kinetics of bistable rotaxanes switched in solution, polymer gels, and mol. electronic devices)

IT Entropy
Free energy
Free energy of activation
(conformational transition; ground-state equilibrium thermodn. and switching kinetics of bistable rotaxanes switched in solution, polymer gels, and mol. electronic devices)

IT Activation energy
Activation enthalpy
Activation entropy
Conformational transition enthalpy
Cyclic voltammetry
Electric current
Equilibrium constant
Hysteresis
Langmuir-Blodgett films
Nanomachines
Oxidation, electrochemical
Oxidation potential
(ground-state equilibrium thermodn. and switching kinetics of bistable rotaxanes switched in solution, polymer gels, and mol. electronic devices)

IT Rotaxanes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
(ground-state equilibrium thermodn. and switching kinetics of bistable rotaxanes switched in solution, polymer gels, and mol. electronic devices)

IT Conformational transition
(kinetics; ground-state equilibrium thermodn. and switching kinetics of bistable rotaxanes switched in solution, polymer gels, and mol. electronic devices)

IT Tunnel junctions
(mol. switch; ground-state equilibrium thermodn. and switching kinetics of bistable rotaxanes switched in solution, polymer gels, and mol. electronic devices)

IT 7440-32-6, Titanium, uses
RL: DEV (Device component use); USES (Uses)
(adhesion layer; ground-state equilibrium thermodn. and switching kinetics of bistable rotaxanes switched in solution, polymer gels, and mol. electronic devices)

IT 846571-56-0P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(control; ground-state equilibrium thermodn. and switching kinetics of bistable rotaxanes switched in solution, polymer gels, and mol. electronic

devices)
IT 7429-90-5, Aluminum, uses 7440-21-3, Polysilicon, uses
RL: DEV (Device component use); USES (Uses)
(**electrode**; ground-state equilibrium thermodn. and switching kinetics of bistable rotaxanes switched in solution, polymer gels, and mol. electronic devices)
IT 9011-14-7, Polymethylmethacrylate
RL: DEV (Device component use); USES (Uses)
(ground-state equilibrium thermodn. and switching kinetics of bistable rotaxanes switched in solution, polymer gels, and mol. electronic devices)
IT **877138-28-8 877138-29-9**
RL: **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(ground-state equilibrium thermodn. and switching kinetics of bistable rotaxanes switched in solution, polymer gels, and mol. electronic devices)
IT 117271-77-9P
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
(ground-state equilibrium thermodn. and switching kinetics of bistable rotaxanes switched in solution, polymer gels, and mol. electronic devices)
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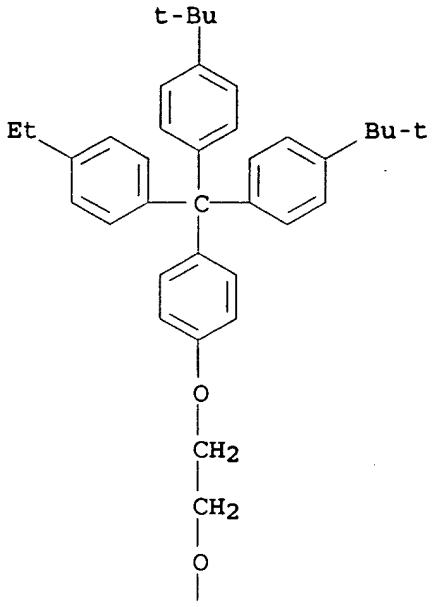
RL: RCT (Reactant); RACT (Reactant or reagent)
(ground-state equilibrium thermodn. and switching kinetics of bistable rotaxanes switched in solution, polymer gels, and mol. electronic devices)
IT 314286-42-5P 813439-48-4P 813439-49-5P 813439-51-9P 813439-53-1P
813439-55-3P 813439-58-6P 813439-60-0P 813439-62-2P 813439-64-4P
813439-66-6P 846571-55-9P 846571-59-3P 846571-61-7P 846571-63-9P
846571-65-1P 846571-67-3P 846571-69-5P 846571-71-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(ground-state equilibrium thermodn. and switching kinetics of bistable rotaxanes switched in solution, polymer gels, and mol. electronic devices)
IT 88454-93-7 125113-35-1 177609-49-3 250687-28-6 616200-93-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(starting material; ground-state equilibrium thermodn. and switching kinetics of bistable rotaxanes switched in solution, polymer gels, and mol. electronic devices)
IT **877138-28-8 877138-29-9**
RL: **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(ground-state equilibrium thermodn. and switching kinetics of bistable rotaxanes switched in solution, polymer gels, and mol. electronic devices)
RN 877138-28-8 HCAPLUS
CN 5,12,19,26-Tetraazoniaheptacyclo[24.2.2.22,5.27,10.212,15.216,19.221,24]tetraconta-2,4,7,9,12,14,16,18,21,23,26,28,29,31,33,35,37,39-octadecaene, rotaxane compd. with 4-[[2-[2-[[5-[2-[2-[[2-[4-[[2-[2-[4-[bis[4-(1,1-dimethylethyl)phenyl](4-ethylphenyl)methyl]phenoxy]ethoxy]ethoxy]methyl]-1,3-dithiol-2-ylidene]-1,3-dithiol-4-yl]methoxy]ethoxy]ethoxy]-1-naphthalenyl]oxy]ethoxy]ethoxy]methyl]-3,5-bis(1-methylethyl)benzenemethanol (1:1) (9CI) (CA INDEX NAME)

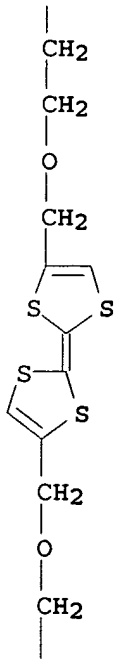
CM 1

CRN 877138-27-7
CMF C79 H96 O10 S4

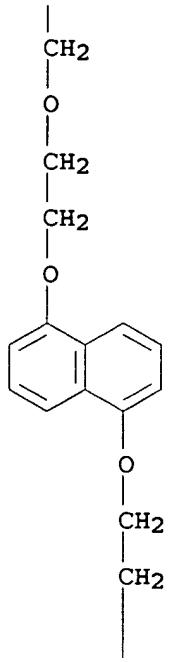
PAGE 1-A




PAGE 2-A



PAGE 3-A



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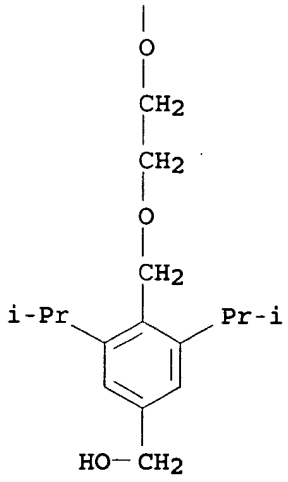
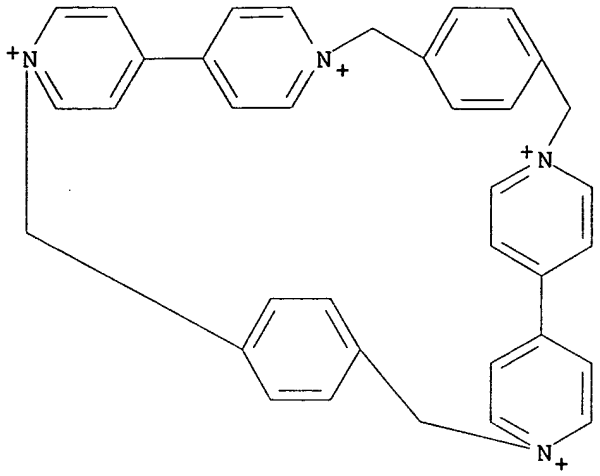



CM 2

CRN 117271-76-8
CMF C36 H32 N4

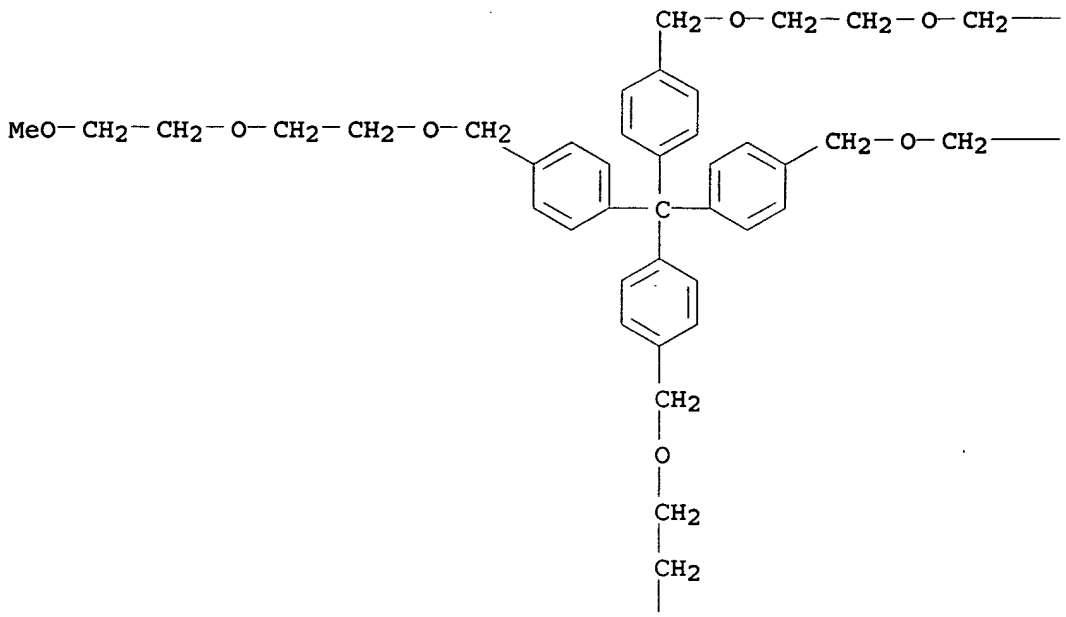


RN 877138-29-9 HCAPLUS
CN 5,12,19,26-Tetraazoniaheptacyclo[24.2.2.22,5.27,10.212,15.216,19.221,24]tetraconta-2,4,7,9,12,14,16,18,21,23,26,28,29,31,33,35,37,39-octadecaene, rotaxane compd. with 2-[4-[[2-[2-[4-[bis[4-(1,1-dimethylethyl)phenyl](4-ethylphenyl)methyl]phenoxy]ethoxy]ethoxy]methyl]-1,3-dithiol-2-ylidene]-4-[[2-[2-[[5-[2-[2-[[4-[tris[4-[[2-(2-methoxyethoxy)ethoxy]methyl]phenyl]methyl]phenyl]methoxy]ethoxy]ethoxy]-1-naphthalenyl]oxy]ethoxy]ethoxy]methyl]-1,3-dithiole (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 616200-75-0
CMF C109 H132 O18 S4

PAGE 1-A

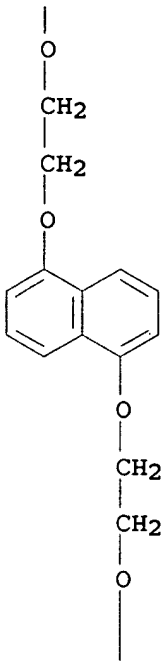


PAGE 1-B

—— $CH_2$— OMe

— $CH_2$— O— $CH_2$— $CH_2$— OMe

PAGE 2-A



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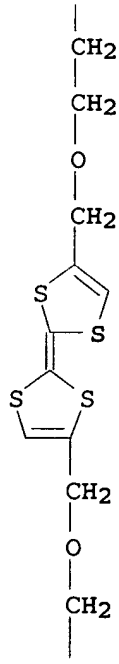

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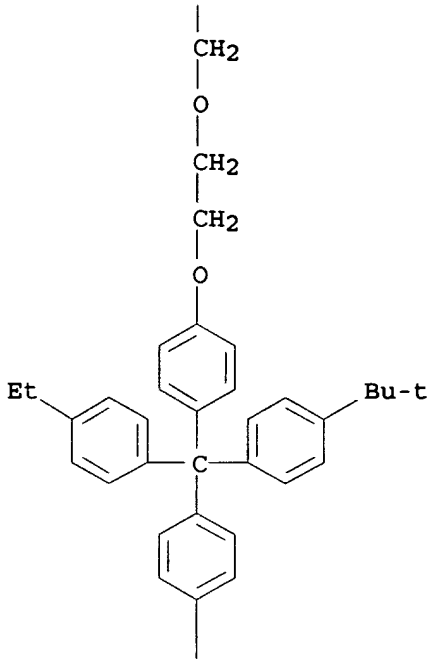
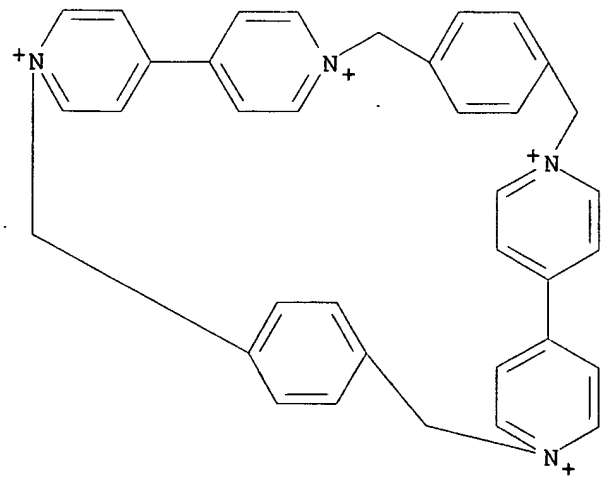



PAGE 5-A


CM 2

CRN 117271-76-8
CMF C36 H32 N4



RE.CNT 96 THERE ARE 96 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 3 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:1287316 HCAPLUS
DN 144:128634
TI A photoactive molecular triad as a nanoscale power supply for a supramolecular machine
AU Saha, Sourav; Johansson, Erik; Flood, Amar H.; Tseng, Hsian-Rong; Zink, Jeffrey I.; Stoddart, J. Fraser
CS The California NanoSystems Institute and Department of Chemistry and Biochemistry, University of California, Los Angeles, Los Angeles, CA, 90095-1569, USA
SO Chemistry--A European Journal (2005), 11(23), 6846-6858
CODEN: CEUJED; ISSN: 0947-6539
PB Wiley-VCH Verlag GmbH & Co. KGaA
DT Journal
LA English
AB A tetrathiafulvalene-porphyrin-fullerene (TTF-P-C60) mol. triad, which generates elec. current by harnessing light energy when self-assembled onto gold **electrodes**, was developed. The triad, composed of three unique electroactive components, namely, (1) an electron-donating TTF unit, (2) a chromophoric porphyrin unit, and (3) an electron-accepting C60 unit, was synthesized in a modular fashion. A disulfide-based anchoring group was tagged to the TTF end of the mol. to allow its self-assembly on gold surfaces. The surface coverage by the triad in a self-assembled monolayer (SAM) is 1.4 nm2 per mol., a d. which is consistent with hexagonal close-packing of the spherical C60 component (diameter .apprx.1 nm). In a closed electronic circuit, a triad-SAM functionalized working-**electrode** generates a switchable photocurrent of .apprx.1.5 μA cm-2 when irradiated with a 413 nm Kr-ion laser, a wavelength which is close to the porphyrin chromophore's absorption maximum peak at 420 nm. The elec. energy generated by the triad at the expense of the light energy is ultimately exploited to drive a supramol. machine as a [2]pseudorotaxane comprised of a π-electron-deficient tetracationic cyclobis(paraquat-p-phenylene) (CBPQT4+) cyclophane and a π-electron-rich 1,5-bis[(2-hydroxyethoxy)ethoxy]naphthalene (BHEEN) thread. The redox-induced dethreading of the CBPQT4+ cyclophane from the BHEEN thread can be monitored by measuring the increase in the fluorescence intensity of the BHEEN unit. A gradual increase in the fluorescence intensity of the BHEEN unit concomitant with the photocurrent generation, event at a potential (0 V) much lower than that required (-300 mV) for the direct reduction of the CBPQT4+ unit, confirms that the dethreading process is driven by the photocurrent generated by the triad-SAM.
CC 22-13 (Physical Organic Chemistry)
Section cross-reference(s): **52**, **72**, 73, 74, 76
ST photoactive triad nanoscale supramol machine
IT Electron transfer
(back; photoactive mol. triad as nanoscale power supply for supramol. machine)
IT Cyclophanes
RL: **DEV (Device component use)**; PRP (Properties); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(heterophanes; photoactive mol. triad as nanoscale power supply for supramol. machine)
IT Transducers
(light-elec. current; photoactive mol. triad as nanoscale power supply for supramol. machine)

IT Electric energy
(mol. power supply; photoactive mol. triad as nanoscale power supply for supramol. machine)
IT Electric circuits
(mol.; photoactive mol. triad as nanoscale power supply for supramol. machine)
IT Cyclic voltammetry
Electric current
Fluorescence
Nanomachines
Photocurrent
Photoelectrochemistry
Redox potential
Redox reaction
Self-assembled monolayers
Self-assembly
Supramolecular structure
(photoactive mol. triad as nanoscale power supply for supramol. machine)
IT Disulfides
RL: **DEV (Device component use)**; RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(photoactive mol. triad as nanoscale power supply for supramol. machine)
IT Fullerenes
Porphyrins
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(photoactive mol. triad as nanoscale power supply for supramol. machine)
IT Electron transfer
(photochem.; photoactive mol. triad as nanoscale power supply for supramol. machine)
IT Chromophores
(porphyrin derivative; photoactive mol. triad as nanoscale power supply for supramol. machine)
IT Rotaxanes
RL: **DEV (Device component use)**; PRP (Properties); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(pseudorotaxanes; photoactive mol. triad as nanoscale power supply for supramol. machine)
IT Inclusion reaction
(threading; photoactive mol. triad as nanoscale power supply for supramol. machine)
IT 10294-33-4, Boron tribromide
RL: RGT (Reagent); RACT (Reactant or reagent)
(debenzylation; photoactive mol. triad as nanoscale power supply for supramol. machine)
IT 136133-14-7 183151-59-9
RL: CPS (Chemical process); **DEV (Device component use)**; FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); FORM (Formation, nonpreparative); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(photoactive mol. triad as nanoscale power supply for supramol. machine)
IT 7440-57-5D, Gold, chain dithiol derivative tetrathiafulvalene-porphyrin-fullerene mol. triad tied to surface of **850347-33-0D**, surface tied to gold
RL: **DEV (Device component use)**; FMU (Formation, unclassified); PRP (Properties); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent); USES (Uses)

(photoactive mol. triad as nanoscale power supply for supramol. machine)

IT **58268-45-4P** 266362-33-8P 290823-80-2P **666729-01-7P** **850347-33-0P** 873536-32-4P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(photoactive mol. triad as nanoscale power supply for supramol. machine)

IT 75-15-0, Carbon disulfide, reactions 100-51-6, Benzyl alcohol, reactions 103-01-5, N-Phenylglycine 109-97-7, Pyrrole 110-87-2, Dihydropyran 628-89-7 922-67-8, Methyl propiolate 1077-28-7, Thioctic acid 1571-08-0, Methyl 4-formylbenzoate 17610-00-3, 3,5-Di-tert-butylbenzaldehyde 99685-96-8, Fullerene 144072-30-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(photoactive mol. triad as nanoscale power supply for supramol. machine)

IT **51751-18-9P** 88454-93-7P 130536-69-5P 227287-28-7P 873536-28-8P 873536-29-9P 873536-30-2P **873536-31-3P** 873536-33-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(photoactive mol. triad as nanoscale power supply for supramol. machine)

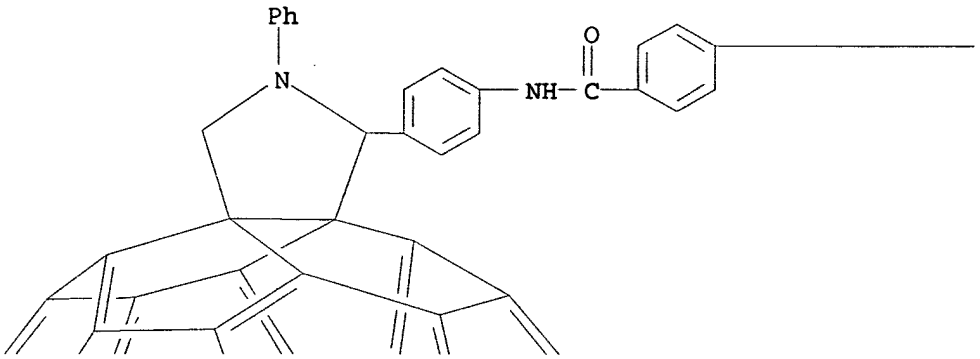
IT 109-02-4, N-Methylmorpholine 118-75-2, p-Chloranil, reactions 998-40-3, Tributylphosphine 1122-58-3, Dmap 3140-73-6
RL: RGT (Reagent); RACT (Reactant or reagent)
(photoactive mol. triad as nanoscale power supply for supramol. machine)

IT **850347-33-0D**, surface tied to gold
RL: **DEV (Device component use)**; FMU (Formation, unclassified); PRP (Properties); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent); USES (Uses)
(photoactive mol. triad as nanoscale power supply for supramol. machine)

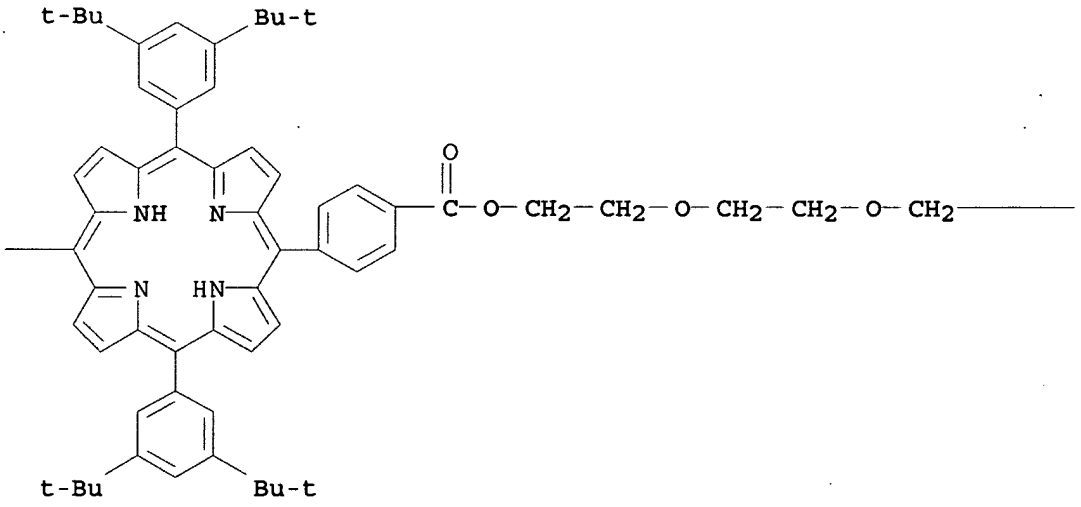
RN 850347-33-0 HCAPLUS

CN 1,2-Dithiolane-3-pentanoic acid, 2-[2-[[2-[4-[[2-[2-[[4-[10,20-bis[3,5-bis(1,1-dimethylethyl)phenyl]-15-[4-[[[4-(1',5'-dihydro-1'-methyl-2'H-[5,6]fullereno-C60-Ih-[1,9-c]pyrrol-2'-yl)phenyl]amino]carbonyl]phenyl]-21H,23H-porphin-5-yl]benzoyl]oxy]ethoxy]ethoxy]methyl]-1,2-dithiol-2-ylidene]-1,2-dithiol-4-yl]methoxy]ethoxy]ethyl ester (9CI) (CA INDEX NAME)

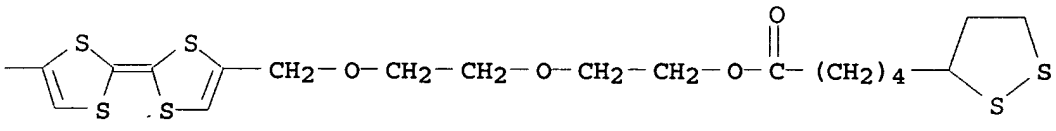
PAGE 1-A




PAGE 1-B



PAGE 1-C



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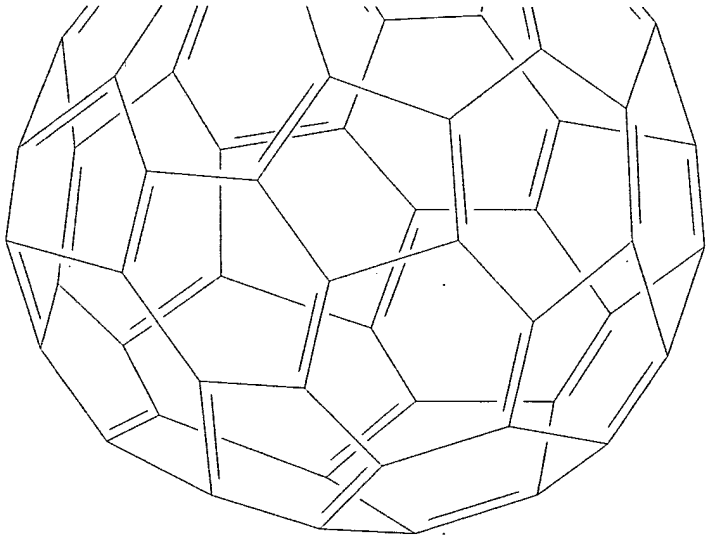
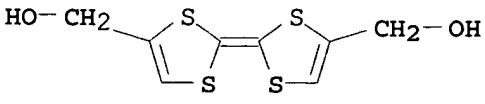


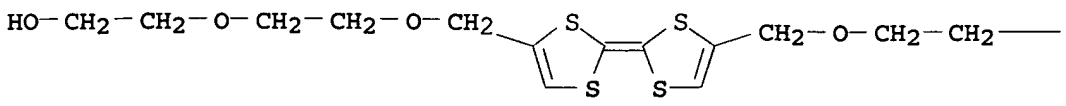
IT **58268-45-4P 666729-01-7P 850347-33-0P**
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(photoactive mol. triad as nanoscale power supply for supramol. machine)

RN 58268-45-4 HCAPLUS
CN 1,3-Dithiole-4-methanol, 2-[4-(hydroxymethyl)-1,3-dithiol-2-ylidene]- (9CI) (CA INDEX NAME)



RN 666729-01-7 HCAPLUS
CN Ethanol, 2-[2-[[2-[4-[[2-(2-hydroxyethoxy)ethoxy]methyl]-1,3-dithiol-2-ylidene]-1,3-dithiol-4-yl]methoxy]ethoxy]- (9CI) (CA INDEX NAME)

PAGE 1-A



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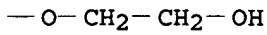
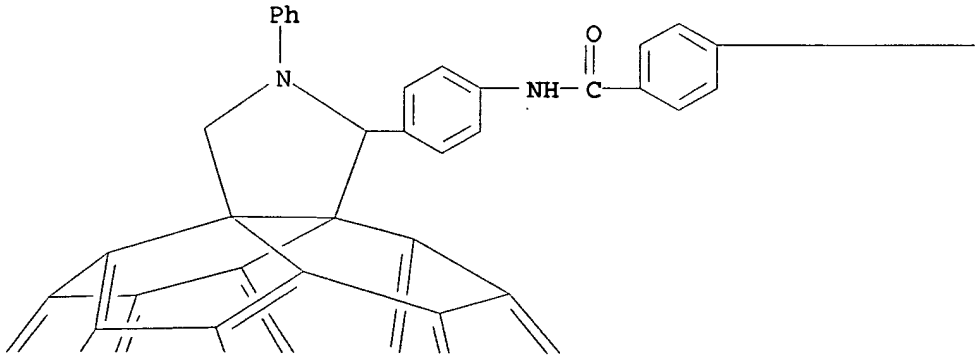


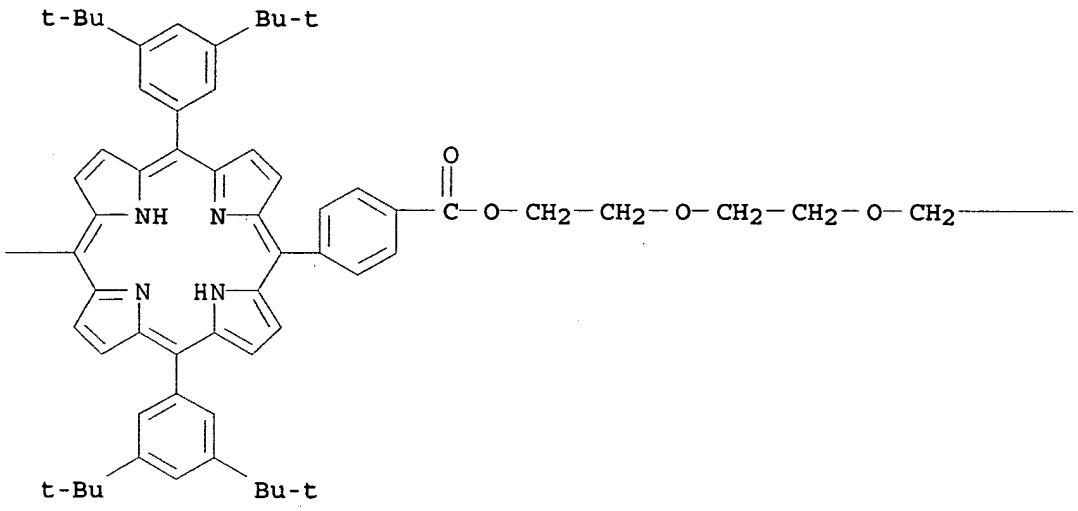
RN 850347-33-0 HCAPLUS

CN 1,2-Dithiolane-3-pentanoic acid, 2-[2-[[2-[4-[[2-[2-[[4-[10,20-bis[3,5-bis(1,1-dimethylethyl)phenyl]-15-[4-[[[4-(1',5'-dihydro-1'-methyl-2'H-[5,6]fullereno-C60-Ih-[1,9-c]pyrrol-2'-yl)phenyl]amino]carbonyl]phenyl]-21H,23H-porphin-5-yl]benzoyl]oxy]ethoxy]ethoxy]methyl]-1,2-dithiol-2-ylidene]-1,2-dithiol-4-yl]methoxy]ethoxy]ethyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

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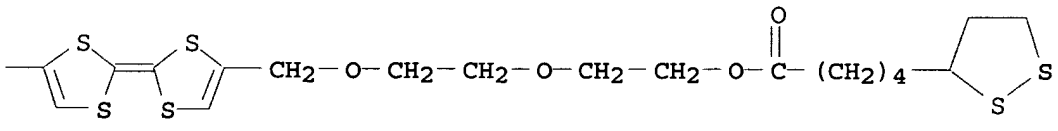

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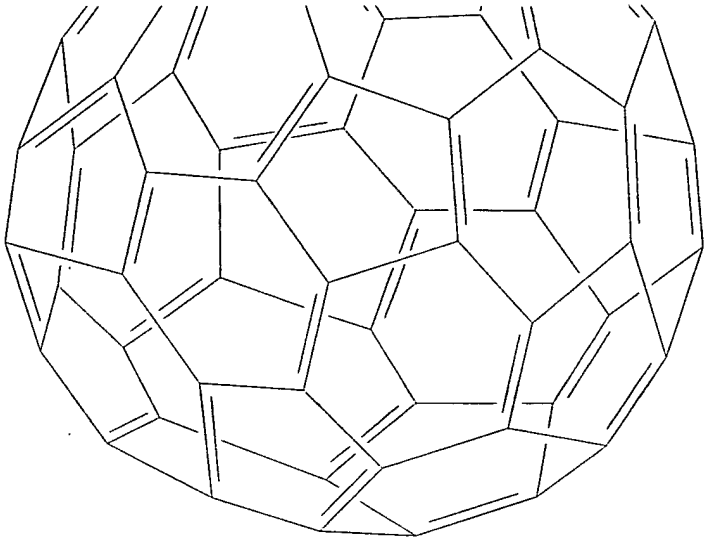
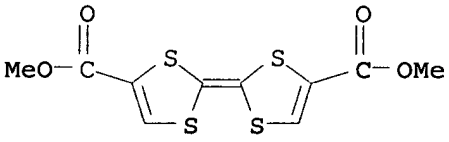


IT **51751-18-9P 873536-31-3P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(photoactive mol. triad as nanoscale power supply for supramol. machine)

RN 51751-18-9 HCAPLUS

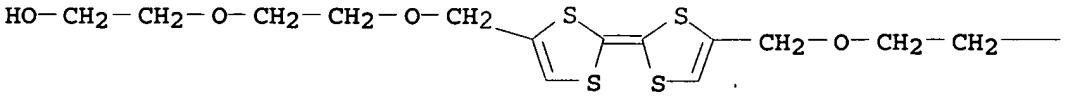
CN 1,3-Dithiole-4-carboxylic acid, 2-[4-(methoxycarbonyl)-1,3-dithiol-2-ylidene]-, methyl ester (9CI) (CA INDEX NAME)



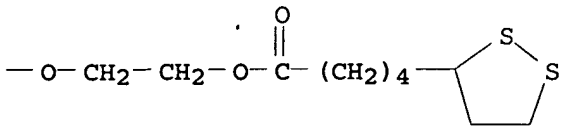
RN 873536-31-3 HCAPLUS

CN 1,2-Dithiolane-3-pentanoic acid, 2-[2-[[2-[4-[[2-(2-hydroxyethoxy)ethoxy]methyl]-1,3-dithiol-2-ylidene]-1,3-dithiol-4-yl]methoxy]ethoxy]ethyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



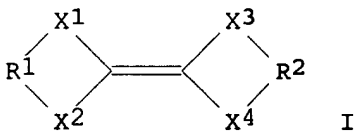
RE.CNT 142 THERE ARE 142 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 4 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:1049967 HCAPLUS
DN 143:349949
TI Power system and its manage method
IN Kuranuki, Masaaki; Inatomi, Yuu
PA Matsushita Electric Industrial Co., Ltd., Japan
SO PCT Int. Appl., 32 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI WO 2005091424 | A1 | 20050929 | WO 2005-JP4442 | 20050314 |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI JP 2004-78891 A 20040318
OS MARPAT 143:349949
GI



I

AB The power system has an electrochem. element, a load, a power generating means, and a charge/discharge control means for the electrochem. element; where the electrochem. element is a secondary battery having a **cathode**, an **anode**, and an electrolyte solution or a solid electrolyte and has ≥1 voltage step on its charge/discharge curve. A threshold voltage is set near the inflection point on 1 of the steps, and the control means controls the charge and discharge of the battery to bring the battery voltage to the threshold voltage. Preferably, the **cathode** or the **anode** is I, where R1 and R2 = linear or cyclic aliphatic groups which may contain O, N, S, Si, P, or B atoms, and

X1-4 = S, O, to Te; and the power system is for automobiles.

IC ICM H01M010-44
ICS G01R031-36; H01M004-60; H02J007-34

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST secondary battery power system control system

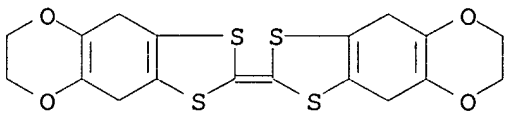
IT Automobiles
Secondary batteries
(power systems containing power generating means and secondary batteries and charge/discharge means for automobiles)

IT **668421-55-4**
RL: **DEV (Device component use)**; USES (Uses)
(**electrodes** for secondary batteries in power systems containing charge/discharge means for automobiles)

IT **668421-55-4**
RL: **DEV (Device component use)**; USES (Uses)
(**electrodes** for secondary batteries in power systems containing charge/discharge means for automobiles)

RN 668421-55-4 HCAPLUS

CN 1,3-Dithiolo[4,5-g][1,4]benzodioxin, 4,6,7,9-tetrahydro-2-(4,6,7,9-tetrahydro-1,3-dithiolo[4,5-g][1,4]benzodioxin-2-ylidene)- (9CI) (CA INDEX NAME)



RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 5 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2005:98596 HCAPLUS

DN 142:201573

TI Photovoltaic devices comprising layer(s) of photoactive organics dissolved in high Tg polymers

IN Robeson, Lloyd Mahlon; Jiang, Xuezhong; Burgoyne, William Franklin

PA USA

SO U.S. Pat. Appl. Publ., 24 pp.
CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 2005022865 | A1 | 20050203 | US 2003-630279 | 20030729 |
| PRAI | US 2003-630279 | | 20030729 | | |

AB The invention concerns a photovoltaic device having an **anode**, a **cathode**, and at least one photoactive layer between the **anode** and the **cathode**, wherein the at least one photoactive layer includes a composition containing a polymer having a glass transition temperature of at least 125°; and a photoactive material, wherein: (a) the photoactive material is a hole transporting organic material, an electron transporting organic material, and/or a light harvesting organic material, (b) the polymer and the photoactive material are in a single phase (c) the photoactive material constitutes at least 20% by weight of the composition, and (d) the at least one photoactive layer is in elec.

communication with the **anode** and the **cathode**, the **anode** and the **cathode** are configured to conduct an elec. charge from the at least one photoactive layer produced by the at least one photoactive layer absorbing light.

IC ICM H01L031-00
INCL 136263000; 438082000
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
ST solar photovoltaic device photoactive org polymer
IT Amines, uses
Polyesters, uses
Polyethers, uses
RL: **DEV (Device component use)**; USES (Uses)
(aromatic; photovoltaic devices comprising layer(s) of photoactive orgs. dissolved in high-Tg polymers)
IT Polyethers, uses
RL: **DEV (Device component use)**; USES (Uses)
(cardo; photovoltaic devices comprising layer(s) of photoactive orgs. dissolved in high-Tg polymers)
IT Glass transition temperature
Photoelectrochemical cells
(photovoltaic devices comprising layer(s) of photoactive orgs. dissolved in high-Tg polymers)
IT Polycarbonates, uses
Polyimides, uses
Porphyrins
RL: **DEV (Device component use)**; USES (Uses)
(photovoltaic devices comprising layer(s) of photoactive orgs. dissolved in high-Tg polymers)
IT Polyimides, uses
RL: **DEV (Device component use)**; USES (Uses)
(polyamide-; photovoltaic devices comprising layer(s) of photoactive orgs. dissolved in high-Tg polymers)
IT Polyesters, uses
RL: **DEV (Device component use)**; USES (Uses)
(polycarbonate-; photovoltaic devices comprising layer(s) of photoactive orgs. dissolved in high-Tg polymers)
IT Polycarbonates, uses
RL: **DEV (Device component use)**; USES (Uses)
(polyester-; photovoltaic devices comprising layer(s) of photoactive orgs. dissolved in high-Tg polymers)
IT Cardo polymers
RL: **DEV (Device component use)**; USES (Uses)
(polyethers; photovoltaic devices comprising layer(s) of photoactive orgs. dissolved in high-Tg polymers)
IT Polyamides, uses
RL: **DEV (Device component use)**; USES (Uses)
(polyimide-; photovoltaic devices comprising layer(s) of photoactive orgs. dissolved in high-Tg polymers)
IT Dyes
(rhodamine; photovoltaic devices comprising layer(s) of photoactive orgs. dissolved in high-Tg polymers)
IT 81-88-9 91-64-5, Coumarin 54300-60-6, Pyrromethene
RL: MOA (Modifier or additive use); USES (Uses)
(dyes; photovoltaic devices comprising layer(s) of photoactive orgs. dissolved in high-Tg polymers)
IT 110-02-1D, Thiophene, derivs. 128-69-8, Perylene-3,4,9,10-tetracarboxylic dianhydride 129-79-3, 2,4,7-Trinitrofluorenone 198-55-0D, Perylene, derivs. 574-93-6, Phthalocyanine 583-63-1,

o-Benzoquinone 670-54-2, Tetracyanoethylene, uses 1518-16-7, Tcnq 5632-29-1, α-Quaterthiophene 17632-18-7 20441-06-9 20910-35-4 24938-67-8, Poly(2,6-dimethyl-1,4-phenylene oxide 25134-01-4, Poly(2,6-dimethyl-1,4-phenylene oxide **31366-25-3** 51325-91-8, 4-(Dicyanomethylene)-2-methyl-6-(4-dimethylaminostyryl)-4H-pyran 65181-78-4 83054-80-2, n,n'-Bis(2,5-di-tert-butylphenyl)-3,4, 9. 10-perylenedicarboximide 88493-55-4, α-Hexathiophene 95270-88-5, PolyFluorene 95689-92-2 110590-81-3 139255-17-7 185690-41-9 188432-91-9, 9,9-Bis(4-hydroxyphenyl)fluorene-4,4'-dibromobiphenyl copolymer 197923-27-6
RL: **DEV (Device component use)**; USES (Uses)
(photovoltaic devices comprising layer(s) of photoactive orgs. dissolved in high-Tg polymers)

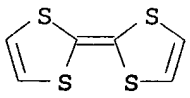
IT 50926-11-9, Ito
RL: TEM (Technical or engineered material use); USES (Uses)
(photovoltaic devices comprising layer(s) of photoactive orgs. dissolved in high-Tg polymers)

IT 50851-57-5, Polystyrenesulfonic acid
RL: MOA (Modifier or additive use); USES (Uses)
(poly(3,4-ethylenedioxythiophene) containing; photovoltaic devices comprising layer(s) of photoactive orgs. dissolved in high-Tg polymers)

IT 126213-51-2, Poly(3,4-ethylenedioxythiophene)
RL: TEM (Technical or engineered material use); USES (Uses)
(polystyrenesulfonic acid-doped; photovoltaic devices comprising layer(s) of photoactive orgs. dissolved in high-Tg polymers)

IT **31366-25-3**
RL: **DEV (Device component use)**; USES (Uses)
(photovoltaic devices comprising layer(s) of photoactive orgs. dissolved in high-Tg polymers)

RN 31366-25-3 HCAPLUS
CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



L28 ANSWER 6 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:1120386 HCAPLUS
DN 142:227464
TI Crown-tetrathiafulvalenes attached to a pyrrole or an EDOT unit: Synthesis, electropolymerization and recognition properties
AU Trippe, Gaelle; Le Derf, Franck; Lyskawa, Joel; Mazari, Miloud; Roncali, Jean; Gorgues, Alain; Levillain, Eric; Salle, Marc
CS Lab. Chimie et Ingenierie Moleculaire, des Materiaux d'Angers (CIMMA), Groupe Synthese Organique et Materiaux Fonctionnels, UMR CNRS 6200, Universite d'Angers, Angers, 49045, Fr.
SO Chemistry--A European Journal (2004), 10(24), 6497-6509
CODEN: CEUJED; ISSN: 0947-6539
PB Wiley-VCH Verlag GmbH & Co. KGaA
DT Journal
LA English
OS CASREACT 142:227464
AB A crown-tetrathiafulvalene electroactive receptor was covalently linked to electropolymerizable pyrrole or 3,4-ethylenedioxythiophene monomers. The synthetic route to the monofunctionalized tetrathiafulvalene (TTF) ligand was optimized. Two derivs. of pyrrole (N- and 3-substituted) were synthesized. The various substituted monomers were electropolymd. to

produce polypyrrole (PP) and poly(ethylenedioxothiophene) (PEDOT) films bearing the electroactive TTF moiety. The electroactivity of the polymer films is efficiently controlled by the well-defined 2-step redox behavior of the TTF unit. In the case of PEDOT, an alternative post-polymerization derivatization strategy was used, involving the grafting of the crown-TTF ligand on the previously grown PEDOT backbone. Though chemical derivatization is realized under heterogeneous conditions, in the bulk of the film, this strategy proved to be particularly efficient. These **electrodes** constitute the 1st examples of conducting polymer-based modified **electrodes** incorporating a TTF electrochem. probe, able to interact with a guest ion, such as Ba2+. The cation recognition properties of these various **electrodes** were analyzed by cyclic voltammetry and their electroactivity in H2O as well as their regeneration capability were studied.

CC 72-2 (**Electrochemistry**)
Section cross-reference(s): 28, 35, 36, 79

ST crown tetrathiafulvalene attached pyrrole EDOT electropolymn recognition property

IT Polymerization
(electrochem.; of crown-TTF covalently linked with pyrrole or ethylenedioxothiophene in MeCN containing Bu4NPF6)

IT Cyclic voltammetry
(of polypyrrole and poly(ethylenedioxythiophene) bearing TTF and crown-TTF in MeCN containing Bu4NPF6)

IT Polymer morphology
(of polythiophene modified with TTF)

IT Chemically modified **electrodes**
(polypyrrole and polythiophene with crown-TTF or TTF)

IT Conducting polymers
(polypyrroles; electrochem. preparation and cyclic voltammetry of polypyrrole and poly(ethylenedioxythiophene) bearing TTF and crown-TTF in MeCN containing Bu4NPF6)

IT Conducting polymers
(polythiophenes; electrochem. preparation and cyclic voltammetry of polypyrrole and poly(ethylenedioxythiophene) bearing TTF and crown-TTF in MeCN containing Bu4NPF6)

IT 22541-12-4, Barium ion(2+), analysis
RL: ANT (Analyte); ANST (Analytical study)
(crown-tetrathiafulvalenes attached to a pyrrole or an EDOT unit: synthesis, electropolymn. and recognition properties)

IT 3109-63-5, Tetrabutylammonium hexafluorophosphate
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(electrochem. polymerization of crown-TTF covalently linked with pyrrole or ethylenedioxothiophene in MeCN containing Bu4NPF6)

IT 376643-38-8P 376643-39-9P
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(electrochem. preparation and reaction with crown-tetrathiafulvalene)

IT 376643-41-3P 840513-91-9P 840513-92-0P 840513-93-1P 840513-94-2P 840513-95-3P
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); PROC (Process)
(electrochem. preparation and voltammetric response in synthesis, electropolymn. and recognition properties of crown-tetrathiafulvalenes attached to pyrrole or an EDOT unit)

IT 7440-06-4, Platinum, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(**electrode** modified by post treated polythiophene with crown-TTF or TTF)

IT **166671-11-0DP**, reaction products polythiophene 376643-38-8DP, reaction products with TTF 376643-39-9DP, reaction products with crown-TTF 479072-57-6DP, reaction products polythiophene
RL: **DEV (Device component use)**; PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(**electrode** modified with)

IT 376643-40-2P 840513-81-7P 840513-82-8P 840513-83-9P 840513-84-0P 840513-85-1P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and electrochem. polymerization of)

IT 376643-36-6P 376643-37-7P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and properties and electrochem. polymerization in synthesis, electropolymn. and recognition properties of crown-tetrathiafulvalenes attached to pyrrole or an EDOT unit)

IT 376643-44-6P 376643-45-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and properties and electrochem. polymerization in synthesis, electropolymn. and recognition properties of crown-tetrathiafulvalenes attached to pyrrole or an EDOT unit)

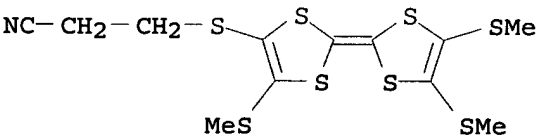
IT 87630-36-2P 118798-05-3P 144366-95-0P 479072-57-6P 838821-68-4P 840513-86-2P 840513-87-3P 840513-88-4P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and properties and synthesis, electropolymn. and recognition properties of crown-tetrathiafulvalenes attached to a pyrrole or an EDOT unit)

IT 146796-02-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction in synthesis, electropolymn. and recognition properties of crown-tetrathiafulvalenes attached to pyrrole or an EDOT unit)

IT **166671-11-0DP**, reaction products polythiophene
RL: **DEV (Device component use)**; PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(**electrode** modified with)

RN 166671-11-0 HCAPLUS

CN Propanenitrile, 3-[[2-[4,5-bis(methylthio)-1,3-dithiol-2-ylidene]-5-(methylthio)-1,3-dithiol-4-yl]thio]- (9CI) (CA INDEX NAME)




RE.CNT 71 THERE ARE 71 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 7 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:1062452 HCAPLUS
DN 142:419847
TI Powering a supramolecular machine with a photoactive molecular triad
AU Saha, Sourav; Johansson, L. Erik; Flood, Amar H.; Tseng, Hsian-Rong; Zink, Jeffrey I.; Stoddart, J. Fraser
CS The California NanoSystems Institute and Department of Chemistry and

Biochemistry, University of California, Los Angeles, Los Angeles, CA, 90095-1569, USA
SO Small (2005), 1(1), 87-90
CODEN: SMALBC; ISSN: 1613-6810
PB Wiley-VCH Verlag GmbH & Co. KGaA
DT Journal
LA English
AB A tetrathiafulvalene-porphyrin-C60 mol. triad that forms a self-assembled monolayer on gold-**electrode** surfaces generates a switchable photocurrent that serves as a basis for incorporating local nanometer-sized power supplies into mol. machines and, in principle, other nanoscale systems. The photocurrent was recorded in both aqueous and organic solns. The observed photocurrent at 0 V in acetonitrile bodes well for optimizing the system to obtain a true photocell that can generate an open-circuit photovoltage. The photoactive triad was used as power source to drive the dethreading of pseudorotaxane comprised of cyclobis(paraquat-p-phenylene)cyclophane complexed with 1,5-bis[(2-hydroxyethoxy)ethoxy]naphthalene.
CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): **52**, 72, 76
ST pseudorotaxane supramol machine powering thiafulvalene porphyrin fullerene photoactive triad; photoelec energy conversion thiafulvalene porphyrin fullerene photoactive triad
IT Electron transfer
(intramol., photochem.; tetrathiafulvalene-porphyrin-C60 photoactive triad and its use as photoinduced power supply to drive pseudorotaxane supramol. machine)
IT Rotaxanes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(pseudorotaxanes; tetrathiafulvalene-porphyrin-C60 photoactive triad and its use as photoinduced power supply to drive pseudorotaxane supramol. machine)
IT Photocurrent
(switchable; tetrathiafulvalene-porphyrin-C60 photoactive triad and its use as photoinduced power supply to drive pseudorotaxane supramol. machine)
IT Fluorescence
Photoelectrochemical cells
Self-assembled monolayers
Supramolecular structure
(tetrathiafulvalene-porphyrin-C60 photoactive triad and its use as photoinduced power supply to drive pseudorotaxane supramol. machine)
IT 7440-06-4, Platinum, uses 7440-57-5, Gold, uses
RL: **DEV (Device component use)**; USES (Uses)
(**electrode**; tetrathiafulvalene-porphyrin-C60 photoactive triad and its use as photoinduced power supply to drive pseudorotaxane supramol. machine)
IT 117271-76-8
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(mol. machine; tetrathiafulvalene-porphyrin-C60 photoactive triad and its use as photoinduced power supply to drive pseudorotaxane supramol. machine)
IT 7757-82-6, Sodium sulfate, uses
RL: **DEV (Device component use)**; USES (Uses)
(tetrathiafulvalene-porphyrin-C60 photoactive triad and its use as photoinduced power supply to drive pseudorotaxane supramol. machine)
IT **850347-33-0**

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(triad; tetrathiafulvalene-porphyrin-C60 photoactive triad and its use as photoinduced power supply to drive pseudorotaxane supramol. machine)

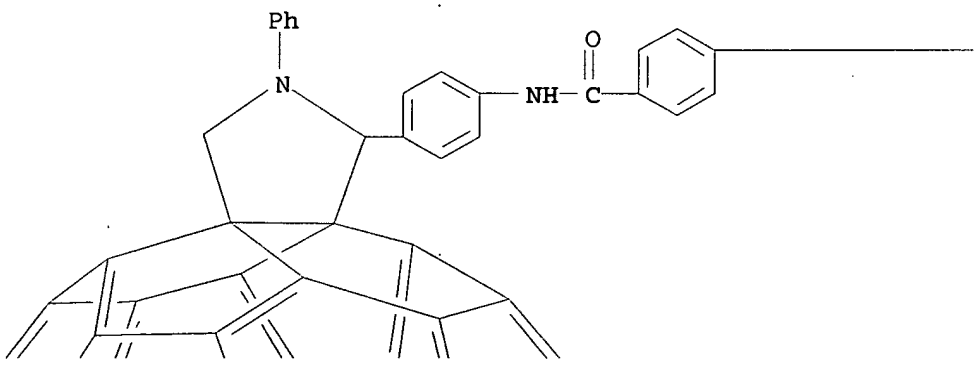
IT **850347-33-0**

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(triad; tetrathiafulvalene-porphyrin-C60 photoactive triad and its use as photoinduced power supply to drive pseudorotaxane supramol. machine)

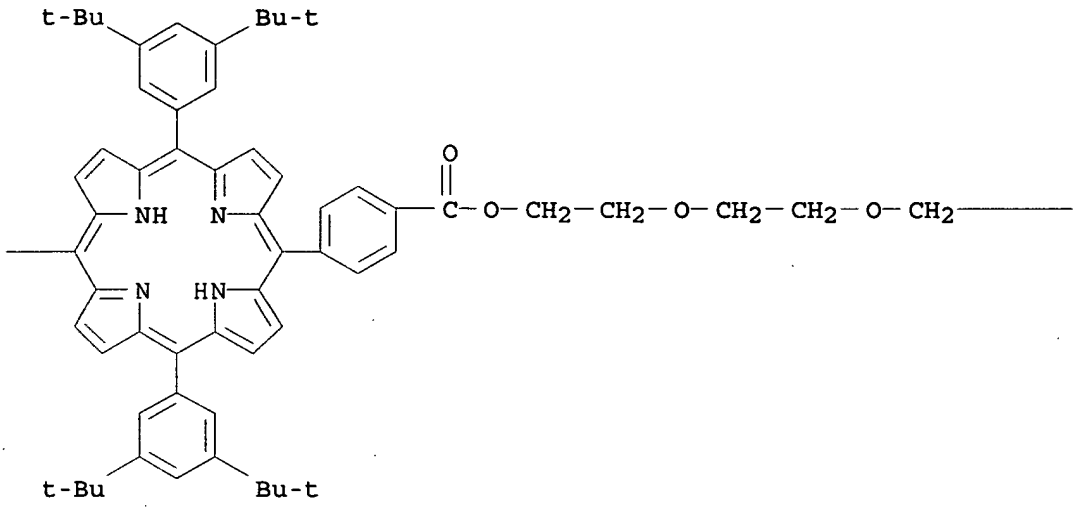
RN 850347-33-0 HCAPLUS

CN 1,2-Dithiolane-3-pentanoic acid, 2-[2-[[2-[4-[[2-[2-[[4-[10,20-bis[3,5-bis(1,1-dimethylethyl)phenyl]-15-[4-[[[4-(1',5'-dihydro-1'-methyl-2'H-[5,6]fullereno-C60-Ih-[1,9-c]pyrrol-2'-yl)phenyl]amino]carbonyl]phenyl]-21H,23H-porphin-5-yl]benzoyl]oxy]ethoxy]ethoxy]methyl]-1,2-dithiol-2-ylidene]-1,2-dithiol-4-yl]methoxy]ethoxy]ethyl ester (9CI) (CA INDEX NAME)

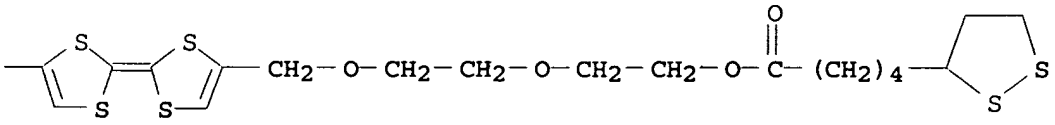
PAGE 1-A



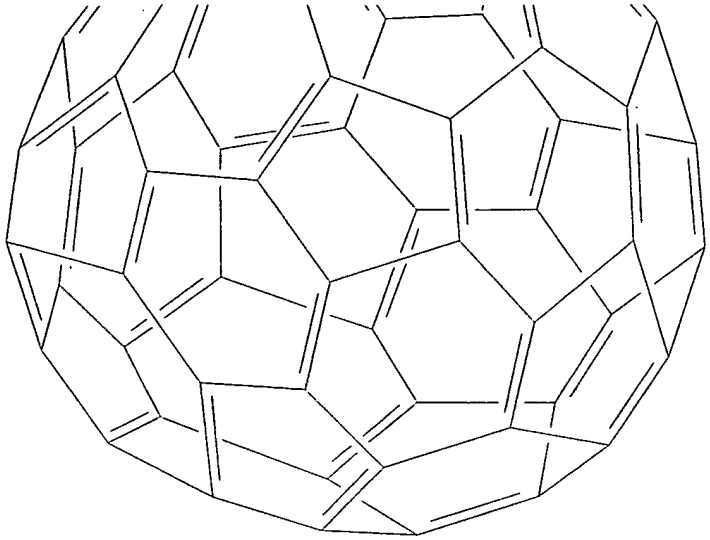
PAGE 1-B




PAGE 1-C



PAGE 2-A



RE.CNT 56 THERE ARE 56 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 8 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:985343 HCAPLUS
DN 142:122001
TI Donor/Acceptor Interactions in Self-Assembled Monolayers and Their Consequences on Interfacial Electron Transfer
AU Pacsial, Eden J.; Alexander, Daniel; Alvarado, Robert J.; Tomasulo, Massimiliano; Raymo, Francisco M.
CS Center for Supramolecular Science, Department of Chemistry, University of Miami, Coral Gables, FL, 33146-0431, USA
SO Journal of Physical Chemistry B (2004), 108(50), 19307-19313
CODEN: JPCBFK; ISSN: 1520-6106
PB American Chemical Society
DT Journal
LA English
AB The supramol. association of tetrathiafulvalene (TTF) donors and bipyridinium acceptors is employed routinely to direct the formation of host/guest complexes and interlocked mols. in bulk solution The authors have reproduced these donor/acceptor interactions at **electrode**/solution interfaces and demonstrated their pronounced influence on heterogeneous electron transfer. Specifically, the authors synthesized a TTF with an oligomethylene arm terminated by a thiol group and assembled monolayers of this compound on Au. The cyclic voltammogram of the immobilized TTF donors varies significantly upon addition of benzyl viologen, tetracyanoquinodimethane (TCNQ), or tetracyanoethylene (TCNE) acceptors to the electrolyte solution Indeed, the supramol. association of the complementary donors and acceptors results in a pronounced current decrease for the TTF redox waves. Consistently, the electrochem. response of the acceptors changes dramatically in the presence of TTF donors on the **electrode** surface. Instead, hexadecanethiolate monolayers, lacking the TTF donors at the termini of the oligomethylene chains, have a marginal influence on the voltammograms of the acceptors. Impedance measurements indicate that the charge-transfer resistance (RCT) for the reduction of the acceptors increases from <0.3 kΩ, at bare Au, to 324,

24, and 43 kΩ for benzyl viologen, TCNQ, and TCNE, resp., at TTF-coated **electrodes**. By contrast, the **electrode** coating has a negligible influence on the cyclic voltammogram and impedance response of ferrocene, which cannot sustain donor/acceptor interactions with the immobilized TTFs. Thus, the interfacial complexation of complementary donors and acceptors has a dramatic effect on the heterogeneous electron transfer to and from the associated components.

CC 72-2 (**Electrochemistry**)
Section cross-reference(s): 22, 28, 66

ST Donor acceptor self assembled monolayer interfacial electron transfer; tetrathiafulvalene modified gold **electrode** donor acceptor interaction; benzyl viologen charge transfer resistance tetrathiafulvalene donor gold **electrode**; TCNQ charge transfer resistance tetrathiafulvalene donor gold **electrode**; TCNE charge transfer resistance tetrathiafulvalene donor gold **electrode**

IT Chemically modified **electrodes**
((mercaptodecylsulfanyl)(methylsulfanyl)tetrathiafulvalene-modified gold)

IT Half wave potential
((mercaptodecylsulfanyl)(methylsulfanyl)tetrathiafulvalene/(mercaptodecylsulfanyl)(methylsulfanyl)tetrathiafulvalene radical cation)

IT Electric resistance
(charge transfer; for dibenzyl viologen and TCNQ and TCNE at Au **electrode** modified with (mercaptodecylsulfanyl)(methylsulfanyl) tetrathiafulvalene and donor/acceptor interactions in self-assembled monolayers)

IT Electron transfer
(donor/acceptor interactions in self-assembled monolayers and their consequences on interfacial electron transfer)

IT Self-assembled monolayers
(donor/acceptor interactions in self-assembled monolayers and their consequences on interfacial electron transfer at Au **electrode** modified with (mercaptodecylsulfanyl)(methylsulfanyl)tetrathiafulvalene )

IT Cyclic voltammetry
Electric impedance
(of dibenzyl viologen and TCNQ and TCNE at Au **electrode** modified with (mercaptodecylsulfanyl)(methylsulfanyl)tetrathiafulvalene and donor/acceptor interactions in self-assembled monolayers)

IT Oxidation, electrochemical
(of ferrocene at Au **electrode** modified with (mercaptodecylsulfanyl)(methylsulfanyl)tetrathiafulvalene)

IT 2917-26-2, Hexadecanethiol
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(cyclic voltammetry and elec. impedance of dibenzyl viologen and TCNQ and TCNE at Au **electrode** modified with (mercaptodecylsulfanyl)(methylsulfanyl)tetrathiafulvalene and comparison with Au **electrode** modified with)

IT 670-54-2, TCNE, properties 1518-16-7, TCNQ 13096-46-3
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(cyclic voltammetry and impedance at Au **electrode** modified with (mercaptodecylsulfanyl)(methylsulfanyl)tetrathiafulvalene and donor/acceptor interactions in self-assembled monolayers and their consequences on interfacial electron transfer)

IT 102-54-5, Ferrocene
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)

(cyclic voltammetry and impedance at Au **electrode** modified with (mercaptodecylsulfanyl)(methylsulfanyl)tetrathiafulvalene and donor/acceptor interactions in self-assembled monolayers and their consequences on interfacial electron transfer)

IT 7440-57-5D, Gold, thiolated **823228-40-6D**, gold bound
RL: **DEV (Device component use)**; PRP (Properties); USES (Uses)
(donor/acceptor interactions in self-assembled monolayers and their consequences on interfacial electron transfer for **electrodes** from)

IT 823228-41-7
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)
(half-wave potential and electrochem. oxidative formation and donor/acceptor interactions in self-assembled monolayers and their consequences on interfacial electron transfer for modified gold **electrodes**)

IT 823228-39-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and deacetylation of)

IT **823228-40-6P**
RL: CPS (Chemical process); **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
(preparation and donor/acceptor interactions in self-assembled monolayers and their consequences on interfacial electron transfer for gold **electrode** modified with)

IT 823228-38-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reaction with MeCOSK in MeCN)

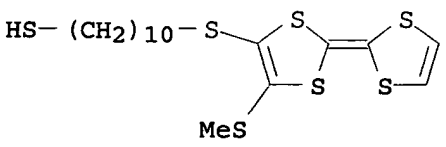
IT 16355-92-3, 1,10-Diiododecane
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction (cyanoethylsulfanyl)(methylsulfanyl)tetrathiafulvalene w)

IT 823228-37-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with 1,10-diiododecane)

IT **823228-40-6D**, gold bound
RL: **DEV (Device component use)**; PRP (Properties); USES (Uses)
(donor/acceptor interactions in self-assembled monolayers and their consequences on interfacial electron transfer for **electrodes** from)

RN 823228-40-6 HCAPLUS

CN 1-Decanethiol, 10-[[2-(1,3-dithiol-2-ylidene)-5-(methylthio)-1,3-dithiol-4-yl]thio]- (9CI) (CA INDEX NAME)




RL: CPS (Chemical process); **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
(prepn. and donor/acceptor interactions in self-assembled monolayers and their consequences on interfacial electron transfer for gold **electrode** modified with

RE.CNT 69 THERE ARE 69 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 9 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:712365 HCAPLUS
DN 142:201346
TI Preparation of a bio-fuel cell using functional bio-sensing **electrodes**
AU Taniguchi, Isao; Tabata, Daisuke; Koga, Tesshu; Tominaga, Masato; Sotomura, Tadashi
CS Department of Applied Chemistry and Biochemistry, Kumamoto University, Kumamoto, 860-8555, Japan
SO Chemical Sensors (2004), 20(Suppl. B), 338-339
CODEN: KAGSEU
PB Denki Kagakkai Kagaku Sensa Kenkyukai
DT Journal
LA English
AB Using glucose sensing **electrodes**, on which surfaces glucose oxidase (GOD) and tetrathiafulvalene (TTF, as an electron-transfer mediator) were co-immobilized, glucose was oxidized around 0 V (vs. Ag/AgCl) in a neutral solution However, bilirubin oxidase (BOD) and 2,2'-azino-bis(3-ethylbenzo)thiazoline-6-sulfonic acid (ABTS, as a mediator) co-immobilized **electrodes** worked well for a catalytic four-electron reduction of oxygen to water even at +0.6 V (vs., Ag/AgCl) at pH 7. The glucose **electrode** and the oxygen **electrode** were combined to prepare a biol. glucose-air battery as a simple bio-fuel cell. Since the **anode** and **cathode** showed no cross-reaction to each other a very simple bio-fuel cell was fabricated. The prepared glucose-air battery showed the open-circuit potential of .apprx.0.5 V, the short-circuit current of .apprx.600 μA cm-2 and the maximum power d. of 75 μW cm-2 at the cell voltage of .apprx.0.25 V.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 7, 35
ST biochem fuel cell biosensor **electrode** glucose bilirubin oxidase mediator; electron transfer mediator glucose co immobilization fuel cell **cathode**
IT Fuel cell **electrodes**
(bio-sensor; preparation of bio-fuel cell using functional bio-sensing **electrodes** with co-immobilized enzymes and electron transfer mediators)
IT Fuel cells
(biochem. fuel cells; preparation of bio-fuel cell using functional bio-sensing **electrodes** with co-immobilized enzymes and electron transfer mediators)
IT Phosphates, uses
RL: **DEV (Device component use)**; USES (Uses)
(buffer solution; preparation of bio-fuel cell using functional bio-sensing **electrodes** with co-immobilized enzymes and electron transfer mediators)
IT Immobilization, molecular or cellular
(coimmobilization; preparation of bio-fuel cell using functional bio-sensing **electrodes** with co-immobilized enzymes and electron transfer mediators)
IT **Electrodes**
(glassy carbon; preparation of bio-fuel cell using functional bio-sensing **electrodes** with co-immobilized enzymes and electron transfer mediators)
IT Electric current-potential relationship
(of assembled fuel cells; preparation of bio-fuel cell using functional

bio-sensing **electrodes** with co-immobilized enzymes and electron transfer mediators)

IT Carbon fibers, uses
RL: **DEV (Device component use)**; TEM (Technical or engineered material use); USES (Uses)
(paper, **electrode** substrate; preparation of bio-fuel cell using functional bio-sensing **electrodes** with co-immobilized enzymes and electron transfer mediators)

IT Electric energy
(power d.; preparation of bio-fuel cell using functional bio-sensing **electrodes** with co-immobilized enzymes and electron transfer mediators)

IT Biosensors
Open circuit potential
(preparation of bio-fuel cell using functional bio-sensing **electrodes** with co-immobilized enzymes and electron transfer mediators)

IT Electric current
(short-circuit; preparation of bio-fuel cell using functional bio-sensing **electrodes** with co-immobilized enzymes and electron transfer mediators)

IT 111-30-8DP, Glutaraldehyde, complexes with polyethyleneimine 9002-98-6DP, complexes with glutaraldehyde 25104-18-1DP, Poly(L-lysine), complexes with poly(styrenesulfonic acid) 50851-57-5DP, Poly(styrene sulfonic acid), complexes with poly(L-lysine)
RL: **DEV (Device component use)**; SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(coating on carbon **electrode**, for immobilization; preparation of bio-fuel cell using functional bio-sensing **electrodes** with co-immobilized enzymes and electron transfer mediators)

IT 9001-37-0, Glucose oxidase 28752-68-3, 2,2'-Azino-bis(3-ethylbenzo)thiazoline-6-sulfonic acid **31366-25-3**, Tetrathiafulvalene 80619-01-8, Bilirubin oxidase
RL: **DEV (Device component use)**; USES (Uses)
(immobilized onto **electrode**; preparation of bio-fuel cell using functional bio-sensing **electrodes** with co-immobilized enzymes and electron transfer mediators)

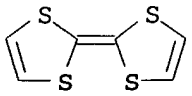
IT 7440-44-0, Carbon, uses
RL: **DEV (Device component use)**; TEM (Technical or engineered material use); USES (Uses)
(paper and glassy disk **electrodes**; preparation of bio-fuel cell using functional bio-sensing **electrodes** with co-immobilized enzymes and electron transfer mediators)

IT 50-99-7, D-Glucose, uses
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(preparation of bio-fuel cell using functional bio-sensing **electrodes** with co-immobilized enzymes and electron transfer mediators)

IT 7447-40-7, Potassium chloride, uses
RL: **DEV (Device component use)**; MOA (Modifier or additive use); USES (Uses)
(preparation of bio-fuel cell using functional bio-sensing **electrodes** with co-immobilized enzymes and electron transfer mediators)

IT **31366-25-3**, Tetrathiafulvalene
RL: **DEV (Device component use)**; USES (Uses)
(immobilized onto **electrode**; preparation of bio-fuel cell using functional bio-sensing **electrodes** with co-immobilized enzymes

and electron transfer mediators)
RN 31366-25-3 HCAPLUS
CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)

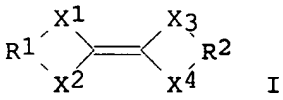


RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 10 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:203235 HCAPLUS
DN 140:238479
TI Electrochemical device
IN Inatomi, Yuu; Shimada, Mikinari; Hojo, Nobuhiko
PA Matsushita Electric Industrial Co., Ltd., Japan
SO U.S. Pat. Appl. Publ., 16 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 2004045818 | A1 | 20040311 | US 2003-648271 | 20030827 |
| | JP 2004111374 | A2 | 20040408 | JP 2003-290160 | 20030808 |
| | EP 1416553 | A1 | 20040506 | EP 2003-19484 | 20030828 |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK | | | | |
| | CN 1495939 | A | 20040512 | CN 2003-160286 | 20030829 |
| PRAI | JP 2002-250416 | A | 20020829 | | |

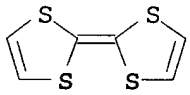
GI



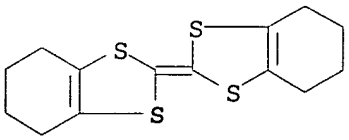
I

AB The invention concerns an electrochem. device for providing elec. energy by converting an electron transfer involved in an oxidation-reduction reaction into elec. energy comprising a pos. **electrode**, a neg. **electrode** and an electrolyte, wherein at least one of the pos. and neg. **electrodes** comprises a compound having a structure represented by the general formula (I), where R1 and R2 are independent of each other and each represents a linear or cyclic aliphatic group; X1, X2, X3, and X4 are independent of each other and each represents a S atom, an O atom, a Se atom, or a Te atom; and the aliphatic group can comprise ≥1 selected from the group consisting of an O atom, a N atom, a S atom, a Si atom, a P atom, and a B atom.
IC ICM C25B011-04
INCL 204291000
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): **72**
ST battery **cathode anode**

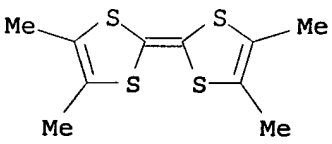
IT Battery **anodes**
(electrochem. device)
IT Secondary batteries
(lithium; electrochem. device)
IT Polyacetylenes, uses
RL: **DEV (Device component use)**; USES (Uses)
(tetrathiafulvalene functionalized; electrochem. device)
IT 7439-93-2, Lithium, uses 25067-58-7D, Polyacetylene, tetrathiafulvalene functionalized **31366-25-3**, Tetrathiafulvalene **35079-58-4** 39302-37-9, Lithium titanium oxide **50708-37-7**, Tetramethyl tetrathiafulvalene **57512-85-3** **62921-51-1D**, reaction products with polyacetylene **66946-48-3** **99159-48-5** **118148-32-6** **128346-62-3** **157289-25-3** **157289-26-4** 174421-80-8, Cobalt lithium nitride Co0.4Li2.6N **214604-40-7** **668421-55-4** **668421-56-5** 668421-57-6, Lithium titanium oxide (LiTi5O12) **668421-58-7** **668421-59-8**
RL: **DEV (Device component use)**; USES (Uses)
(electrochem. device)
IT **31366-25-3**, Tetrathiafulvalene **35079-58-4** **50708-37-7**, Tetramethyl tetrathiafulvalene **57512-85-3** **62921-51-1D**, reaction products with polyacetylene **66946-48-3** **99159-48-5** **118148-32-6** **128346-62-3** **157289-25-3** **157289-26-4** **214604-40-7** **668421-55-4** **668421-56-5** **668421-58-7** **668421-59-8**
RL: **DEV (Device component use)**; USES (Uses)
(electrochem. device)
RN 31366-25-3 HCAPLUS
CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



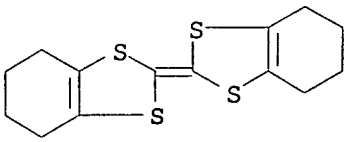
RN 35079-58-4 HCAPLUS
CN 1,3-Benzodithiole, 4,5,6,7-tetrahydro-2-(4,5,6,7-tetrahydro-1,3-benzodithiol-2-ylidene)- (9CI) (CA INDEX NAME)



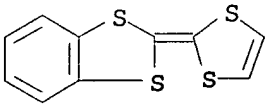
RN 50708-37-7 HCAPLUS
CN 1,3-Dithiole, 2-(4,5-dimethyl-1,3-dithiol-2-ylidene)-4,5-dimethyl- (9CI) (CA INDEX NAME)



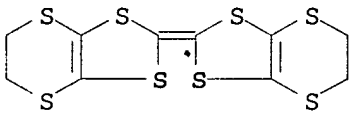
RN 57512-85-3 HCAPLUS
CN 1,3-Benzodithiole, 4,5,6,7-tetrahydro-2-(4,5,6,7-tetrahydro-1,3-benzodithiol-2-ylidene)-, radical ion(1+) (9CI) (CA INDEX NAME)



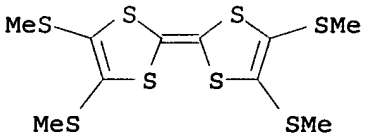
RN 62921-51-1 HCAPLUS
CN 1,3-Benzodithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



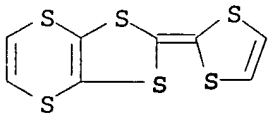
RN 66946-48-3 HCAPLUS
CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



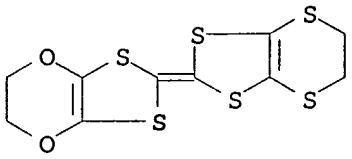
RN 99159-48-5 HCAPLUS
CN 1,3-Dithiole, 2-[4,5-bis(methylthio)-1,3-dithiol-2-ylidene]-4,5-bis(methylthio)-, radical ion(1+) (9CI) (CA INDEX NAME)



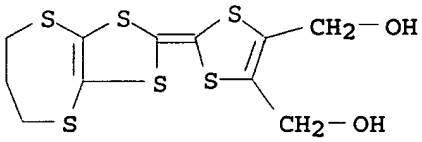
RN 118148-32-6 HCAPLUS
CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



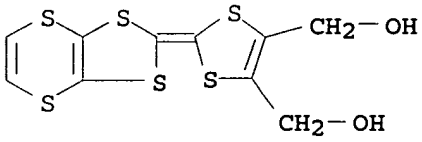
RN 128346-62-3 HCAPLUS
CN 1,3-Dithiolo[4,5-b][1,4]dioxin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



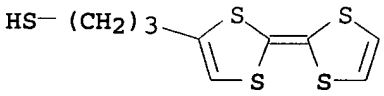
RN 157289-25-3 HCAPLUS
CN 1,3-Dithiole-4,5-dimethanol, 2-(6,7-dihydro-5H-1,3-dithiolo[4,5-b][1,4]dithiepin-2-ylidene)- (9CI) (CA INDEX NAME)



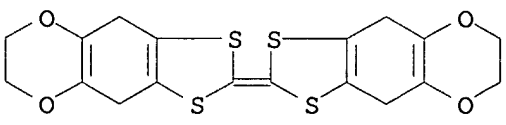
RN 157289-26-4 HCAPLUS
CN 1,3-Dithiole-4,5-dimethanol, 2-(1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)- (9CI) (CA INDEX NAME)



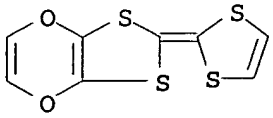
RN 214604-40-7 HCAPLUS
CN 1,3-Dithiole-4-propanethiol, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



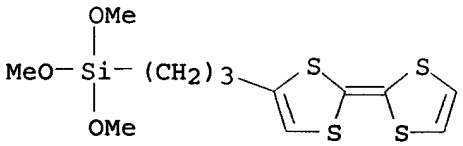
RN 668421-55-4 HCAPLUS
CN 1,3-Dithiolo[4,5-g][1,4]benzodioxin, 4,6,7,9-tetrahydro-2-(4,6,7,9-tetrahydro-1,3-dithiolo[4,5-g][1,4]benzodioxin-2-ylidene)- (9CI) (CA INDEX NAME)



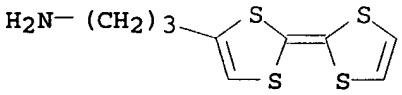
RN 668421-56-5 HCAPLUS
CN 1,3-Dithiolo[4,5-b][1,4]dioxin, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



RN 668421-58-7 HCAPLUS
CN Silane, [3-[2-(1,3-dithiol-2-ylidene)-1,3-dithiol-4-yl]propyl]trimethoxy- (9CI) (CA INDEX NAME)

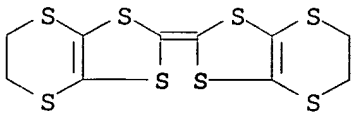


RN 668421-59-8 HCAPLUS
CN 1,3-Dithiole-4-propanamine, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



L28 ANSWER 11 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:173208 HCAPLUS
DN 138:408228
TI High-conductivity organic metals as **electrode** materials
AU Pospelov, Alexander P.; Ved, Marina V.; Sakhnenko, Nikolay D.; Alexandrov, Yuriy L.; Shtefan, Viktoria V.; Kravchenko, Andrey V.; Kamarchuk, Gennadiy V.
CS National Technical University Kharkov Polytechnical Institute, Kharkov, Ukraine
SO Materials Science (2002), 20(3), 65-72
CODEN: MSCJDS; ISSN: 0137-1339
PB Wroclaw University of Technology, Centre of Advanced Materials and Nanotechnology
DT Journal
LA English
AB **Electrode** properties of TCNQ (7,7,8,8-tetracyanoquinodimethane) and BEDT-TTF (bis-(ethylenedithio)tetrathiafulvalene) derivs. are considered. The BEDT-TTF-based organic **electrode** materials were produced by electrochem. technique. **Electrodes** with TCNQ salts were obtained by thermal or evaporation method. Polarization and impedance investigations have shown the high **electrode** activity of the BEDT-TTF based materials in irreversible electrochem. processes. TCNQ-based OM sensitivity to pH as well as **electrode** surface resistance vary depending on gaseous phase composition The latter circumstance is quite prospective for applications of organic metals in anal. control devices.
CC 72-2 (**Electrochemistry**)
Section cross-reference(s): 29, 79
ST molten salt org metal **electrode** material electrosynthesis
IT Gas sensors

(Pt **electrode** modified with evaporated organic metals for gases)
IT Sensors
(electrochem.; Pt **electrode** modified with evaporated organic metals for gases)
IT Synthesis
(electrochem.; of high-conductivity organic metals)
IT **Electrodes**
(high-conductivity organic metals as **electrode** materials)
IT Salts, uses
RL: NUU (Other use, unclassified); USES (Uses)
(molten; high-conductivity organic metals as **electrode** materials)
IT Electric capacitance
(of Pt **electrode** modified with (ET)2Mo6O19 in H2SO4)
IT Cyclic voltammetry
(of Pt **electrodes** bare and modified with (ET)2Mo6O19 in H2SO4)
IT 7664-93-9, Sulfuric acid, uses
RL: NUU (Other use, unclassified); USES (Uses)
(cyclic voltammetry of Pt **electrodes** bare and modified with (ET)2Mo6O19 in H2SO4)
IT **66946-48-3**, Bis-(ethylenedithio)tetrathiafulvalene
RL: **DEV (Device component use)**; PRP (Properties); USES (Uses)
(derivs.; high-conductivity organic metals as **electrode** materials)
IT 12390-22-6
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(electrosynthesis of high-conductivity organic metals as **electrode** materials in solution containing)
IT 68-12-2, DMF, uses 2537-36-2, Tetramethylammonium perchlorate
RL: NUU (Other use, unclassified); USES (Uses)
(electrosynthesis of high-conductivity organic metals as **electrode** materials in solution containing)
IT 134116-05-5P
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(electrosynthesis of high-conductivity organic metals as **electrode** materials in solution containing tetracyanoquinodimethane or bis-(ethylenedithio)tetrathiafulvalene derivs. on)
IT 7440-06-4, Platinum, uses
RL: DEV (Device component use); USES (Uses)
(electrosynthesis of high-conductivity organic metals as **electrode** materials in solution containing tetracyanoquinodimethane or bis-(ethylenedithio)tetrathiafulvalene derivs. on)
IT 1518-16-7
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(high-conductivity organic metals as **electrode** materials)
IT **66946-48-3**, Bis-(ethylenedithio)tetrathiafulvalene
RL: **DEV (Device component use)**; PRP (Properties); USES (Uses)
(derivs.; high-conductivity organic metals as **electrode** materials)
RN 66946-48-3 HCAPLUS
CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 12 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:1628 HCAPLUS
DN 138:179804
TI An Analogy of an Ion-Selective **Electrode** Sensor Based on the Voltammetry of Microcrystals of Tetracyanoquinodimethane or Tetrathiafulvalene Adhered to an **Electrode** Surface
AU Wooster, Tim J.; Bond, Alan M.; Honeychurch, Michael J.
CS School of Chemistry, Monash University, 3800, Australia
SO Analytical Chemistry (2003), 75(3), 586-592
CODEN: ANCHAM; ISSN: 0003-2700
PB American Chemical Society
DT Journal
LA English
AB The voltammetry of solid 7,7,8,8-tetracyanoquinodimethane (TCNQ) and tetrathiafulvalene (TTF) at an **electrode**-microparticle-aqueous (electrolyte) interface generates characteristic current-potential profiles associated with solid-solid-phase transformations. During the reactions, electrolyte ions are included into the TCNQ (cations) and TTF (anions) lattice sites as part of the charge neutralization process. Consequently, electrolyte ion concentration is associated with the reversible potential of the TCNQ0/- and TTF0/+ reactions, making these processes candidates for the development of novel voltammetric cation and anion sensors, resp. **Electrode** potential-analyte ion concentration dependence studies exhibited highly reproducible potential shifts of 45 (±1) mV/decade change in ion analyte concentration for both the TCNQ cation sensor and the TTF anion sensor. When presented with mixed-analyte solns., both ion-sensing systems exhibited a degree of ion selectivity. Ion selectivity trends may be modeled using equations based on a Nicolsky-type selectivity relation, in accordance with the concept that these are the voltammetric analogies of potentiometric ion-selective membrane **electrodes.**
CC 79-2 (Inorganic Analytical Chemistry)
Section cross-reference(s): **72**
ST microcrystal tetracyanoquinodimethane tetrathiafulvalene modified **electrode** anion cation detection
IT Cyclic voltammetry
Ion-selective **electrodes**
(analogy of ion-selective **electrode** sensor based on the voltammetry of microcrystals of tetracyanoquinodimethane or tetrathiafulvalene adhered to an **electrode** surface)
IT Anions
(analytes; analogy of ion-selective **electrode** sensor based on the voltammetry of microcrystals of tetracyanoquinodimethane or tetrathiafulvalene adhered to an **electrode** surface)
IT Halides
RL: ANT (Analyte); ANST (Analytical study)
(analytes; analogy of ion-selective **electrode** sensor based on the voltammetry of microcrystals of tetracyanoquinodimethane or tetrathiafulvalene adhered to an **electrode** surface)
IT Sensors
(electrochem.; analogy of ion-selective **electrode** sensor based on the voltammetry of microcrystals of tetracyanoquinodimethane or tetrathiafulvalene adhered to an **electrode** surface)
IT Polyoxyalkylenes, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)

(fluorine- and sulfo-containing, ionomers, Nafion, for sensor; analogy of ion-selective **electrode** sensor based on the voltammetry of microcrystals of tetracyanoquinodimethane or tetrathiafulvalene adhered to an **electrode** surface)

IT Alkali metals, analysis
RL: ANT (Analyte); ANST (Analytical study)
(ions, analytes; analogy of ion-selective **electrode** sensor based on the voltammetry of microcrystals of tetracyanoquinodimethane or tetrathiafulvalene adhered to an **electrode** surface)

IT Carbon fibers, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(microelectrode; analogy of ion-selective **electrode** sensor based on the voltammetry of microcrystals of tetracyanoquinodimethane or tetrathiafulvalene adhered to an **electrode** surface)

IT Oxidation potential
Reduction potential
(of microcrystals of tetracyanoquinodimethane or tetrathiafulvalene adhered to an **electrode** surface)

IT Fluoropolymers, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(polyoxyalkylene-, sulfo-containing, ionomers, Nafion, for sensor; analogy of ion-selective **electrode** sensor based on the voltammetry of microcrystals of tetracyanoquinodimethane or tetrathiafulvalene adhered to an **electrode** surface)

IT Ionomers
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(polyoxyalkylenes, fluorine- and sulfo-containing, Nafion, for sensor; analogy of ion-selective **electrode** sensor based on the voltammetry of microcrystals of tetracyanoquinodimethane or tetrathiafulvalene adhered to an **electrode** surface)

IT 1518-16-7
RL: ARU (Analytical role, unclassified); DEV (Device component use); PRP (Properties); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(analogy of ion-selective **electrode** sensor based on the voltammetry of microcrystals of tetracyanoquinodimethane or tetrathiafulvalene adhered to an **electrode** surface)

IT **31366-25-3**, Tetrathiafulvalene
RL: ARU (Analytical role, unclassified); **DEV (Device component use)**; RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(analogy of ion-selective **electrode** sensor based on the voltammetry of microcrystals of tetracyanoquinodimethane or tetrathiafulvalene adhered to an **electrode** surface)

IT 14797-55-8, Nitrate, analysis 16887-00-6, Chloride, analysis 24959-67-9, Bromide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(analyte; analogy of ion-selective **electrode** sensor based on the voltammetry of microcrystals of tetracyanoquinodimethane or tetrathiafulvalene adhered to an **electrode** surface)

IT 7440-09-7, Potassium, analysis 7440-17-7, Rubidium, analysis 7440-23-5, Sodium, analysis
RL: ANT (Analyte); ANST (Analytical study)
(cationic, analyte; analogy of ion-selective **electrode** sensor based on the voltammetry of microcrystals of tetracyanoquinodimethane or tetrathiafulvalene adhered to an **electrode** surface)

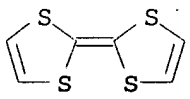
IT 7440-06-4, Platinum, analysis

RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(disk **electrode**; analogy of ion-selective **electrode** sensor based on the voltammetry of microcrystals of tetracyanoquinodimethane or tetrathiafulvalene adhered to an **electrode** surface)

IT 7440-44-0, Carbon, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(glassy carbon disk **electrode**; analogy of ion-selective **electrode** sensor based on the voltammetry of microcrystals of tetracyanoquinodimethane or tetrathiafulvalene adhered to an **electrode** surface)

IT **31366-25-3**, Tetrathiafulvalene
RL: ARU (Analytical role, unclassified); **DEV (Device component use)**; RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(analogy of ion-selective **electrode** sensor based on the voltammetry of microcrystals of tetracyanoquinodimethane or tetrathiafulvalene adhered to an **electrode** surface)

RN 31366-25-3 HCAPLUS
CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



RE.CNT 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

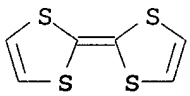
L28 ANSWER 13 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:925623 HCAPLUS
DN 138:10175
TI Modified **electrodes** and process for modifying **electrodes** for increasing work functions
IN Saito, Kazuhiro; Kamata, Toshihide; Tano, Takanori
PA Ministry of Economy, Trade and Industry; National Industrial Research Institute, Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | JP 2002353165 | A2 | 20021206 | JP 2001-153163 | 20010522 |
| PRAI | JP 2001-153163 | | 20010522 | | |

AB The title process for increasing work functions on **electrodes** employs formation of a tetrathiafulvalene-tetracyanoquinodimethane (TTF-TCNQ) complex compound thin film on an **electrode** whose original work function is low. The process avoids use of expensive precious metal to provide **electrodes** with significantly increased work function.

IC ICM H01L021-28
ICS H01L029-786; H01L029-872; H01L031-04; H05B033-14; H05B033-26
CC 76-2 (Electric Phenomena)
Section cross-reference(s): **52**
ST TTF TCNQ thin film modification **electrode** work function

IT Work function
(increase of; modified **electrodes** and process for modifying **electrodes** for increasing work functions)
IT **Electrodes**
Solar cells
Transistors
(modified **electrodes** and process for modifying **electrodes** for increasing work functions)
IT 7429-90-5, Aluminum, processes
RL: **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(**electrode**, thin film deposition of TTF-TCNQ; modified **electrodes** and process for modifying **electrodes** for increasing work functions)
IT 1518-16-7D, TCNQ, complex compds. with TTF **31366-25-3D**, Tetrathiafulvalene, complex compds. with TCNQ
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(thin film for increase of work function; modified **electrodes** and process for modifying **electrodes** for increasing work functions)
IT **31366-25-3D**, Tetrathiafulvalene, complex compds. with TCNQ
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(thin film for increase of work function; modified **electrodes** and process for modifying **electrodes** for increasing work functions)
RN 31366-25-3 HCAPLUS
CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



L28 ANSWER 14 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:696426 HCAPLUS
DN 137:223925
TI Electrochromic device
IN Armgarth, Marten; Kugler, Thomas; Berggren, Rolf M.; Remonen, Tommi M.
PA Swed.
SO U.S. Pat. Appl. Publ., 23 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 5

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 2002126365 | A1 | 20020912 | US 2002-91399 | 20020307 |
| | US 6587250 | B2 | 20030701 | | |
| | SE 2001000747 | A | 20020908 | SE 2001-747 | 20010307 |
| | SE 521552 | C2 | 20031111 | | |
| | WO 2002071140 | A1 | 20020912 | WO 2002-SE405 | 20020307 |
| | WO 2002071140 | C1 | 20040603 | | |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
EP 1373975 A1 20040102 EP 2002-701875 20020307
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
CN 1496492 A 20040512 CN 2002-806128 20020307
JP 2004526195 T2 20040826 JP 2002-569997 20020307
PRAI SE 2001-747 A 20010307
US 2001-276105P P 20010316
WO 2002-SE405 W 20020307

AB Supported or self-supporting electrochromic devices are described which comprise ≥1 electrochromic element comprising ≥1 first material that is elec. conducting in ≥1 oxidation state and ≥1 electrochromic material, wherein the first material and the electrochromic material can be the same or different, ≥1 layer of a solidified electrolyte which is in direct elec. contact with the electrochromic element, and ≥2 **electrodes**, each of which is in direct elec. contact with ≥1 of the electrolyte layer(s) and not in direct elec. contact with the electrochromic element. Displays and mirrors incorporating such a device, as well as processes for the production of the devices are also described. Methods for addressing an electrochem. active element are also provided. By allowing the electrochromic material to be addressed via the electrolyte, the **electrode** architecture is not limited by the requirement that the **electrodes** of the voltage supply be in direct elec. contact with the electrochromic material for electrochromic effects to occur.

IC ICM G02F001-15
ICS G02F001-153
INCL 359265000; X35-926.9; X35-927.0; X35-927.1; X35-927.3
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): **72**, 74, 76
ST electrochromic device electrolyte indirect address; electrochromic display electrolyte indirect address

IT Electrochromic devices
Electrochromic imaging devices
Gels
Paper
(electrochromic devices with indirect addressing via the electrolyte and their production and use)

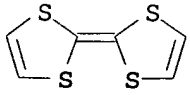
IT Glass, uses
Polyanilines
Polycarbonates, uses
Polyesters, uses
Polyoxyalkylenes, uses
Polysaccharides, uses
Polyurethanes, uses
RL: DEV (Device component use); USES (Uses)
(electrochromic devices with indirect addressing via the electrolyte and their production and use)

IT Mirrors
(electrochromic; electrochromic devices with indirect addressing via the electrolyte and their production and use)

IT Electrochromic devices
(mirrors; electrochromic devices with indirect addressing via the electrolyte and their production and use)

IT Conducting polymers
(polypyrroles; electrochromic devices with indirect addressing via the

electrolyte and their production and use)
IT Conducting polymers
(polythiophenes; electrochromic devices with indirect addressing via the electrolyte and their production and use)
IT Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(salts; electrochromic devices with indirect addressing via the electrolyte and their production and use)
IT 61-73-4, Methylene blue 81-93-6, Phenosafranine 94-10-0, p-Ethoxychrysoidine 302-04-5, Thiocyanate anion, uses 366-29-0, N,N,N',N'-Tetramethylbenzidine 2650-18-2, Erioglaucine A 9002-88-4, Polyethylene 9002-89-5, Poly(vinyl alcohol) 9002-89-5D, Poly(vinyl alcohol), salts 9003-01-4, Polyacrylic acid 9003-01-4D, Polyacrylic acid, salts 9003-05-8 9003-05-8D, salts 9003-07-0, Polypropylene 9003-39-8, Poly(vinylpyrrolidone) 9003-39-8D, Poly(vinylpyrrolidone), salts 9020-32-0 9020-73-9, Polyethylene naphthalene dicarboxylate 15438-31-0, Iron +2, uses 15546-75-5, 5,10-Dihydro-5,10-dimethylphenazine 23724-08-5, Pentaaqua(isothiocyanato)iron(2+) 25038-59-9, Polyethylene terephthalate, uses 25087-26-7, Polymethacrylic acid 25087-26-7D, Polymethacrylic acid, salts 25322-68-3, Polyethylene oxide 25322-68-3D, Polyethylene oxide, salts 25322-69-4, Polypropylene oxide 25322-69-4D, Polypropylene oxide, salts 27215-51-6, N,N,N',N'-Tetramethylphenylenediamine **31366-25-3**, Tetrathiafulvalene 62248-00-4, 5,10-Dihydro-5,10-diethylphenazine 68651-46-7, Indigo dye 96638-49-2D, Polyphenylene vinylene, derivs. 126213-51-2, Poly(3,4-ethylenedioxythiophene) 126213-51-2D, Poly(3,4-ethylenedioxythiophene), derivs. 126213-52-3, Poly(3,4-methylenedioxythiophene) 126213-52-3D, Poly(3,4-methylenedioxythiophene), derivs. 136428-63-2, 5,10-Dihydro-5,10-dioctylphenazine 150504-14-6, Poly(3,4-propylenedioxythiophene) 150504-14-6D, Poly(3,4-propylenedioxythiophene), derivs. 175992-45-7 202927-42-2, Poly(3,4-butylenedioxythiophene) 202927-42-2D, derivs.
RL: **DEV (Device component use)**; USES (Uses)
(electrochromic devices with indirect addressing via the electrolyte and their production and use)
IT 50851-57-5
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(polyethylene dioxythiophene doped with; electrochromic devices with indirect addressing via the electrolyte and their production and use)
IT **31366-25-3**, Tetrathiafulvalene
RL: **DEV (Device component use)**; USES (Uses)
(electrochromic devices with indirect addressing via the electrolyte and their production and use)
RN 31366-25-3 HCAPLUS
CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



L28 ANSWER 15 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:177357 HCAPLUS
DN 136:349784
TI Redox-Active Self-Assembled Monolayers for Solid-Contact Polymeric Membrane Ion-Selective **Electrodes**
AU Fibbioli, Monia; Bandyopadhyay, Krisanu; Liu, Sheng-Gao; Echegoyen, Luis;

Enger, Olivier; Diederich, Francois; Gingery, David; Buehlmann, Philippe; Persson, Henrik; Suter, Ulrich W.; Pretsch, Ernoe

CS Laboratorium fuer Organische Chemie, ETH-Hoenggerberg, Zurich, CH-8093, Switz.

SO Chemistry of Materials (2002), 14(4), 1721-1729
CODEN: CMATEX; ISSN: 0897-4756
PB American Chemical Society
DT Journal
LA English

AB With a view to the miniaturization of ion-selective **electrodes** (ISEs), thin (10-20 μm) polymer membranes are directly contacted to Au covered with a redox-active, lipophilic self-assembled monolayer (SAM). Several homogeneous and mixed monolayers are characterized by reflection-absorption IR spectroscopy, ellipsometry, scanning tunneling microscopy, cyclic voltammetry, and contact angle measurements. These Au/thiol surfaces are combined with different K+-selective sensing membranes based on poly(vinyl chloride) (PVC), polyurethane (PUR), or PVC/PUR blends as a matrix and valinomycin as an ionophore. The sensors are studied with regard to their potential stability in the presence of O2 and redox-active species. The occurrence of potential drifts upon changing the conditioning KCl solution to a NaCl solution is used as an indicator for the formation of an aqueous film between the membrane and Au/SAM. Stable systems are obtained with mixed monolayers (advancing contact angle θa ≈ 83°) and PVC membranes with a lower than usual plasticizer content (33%), the ternary systems PVC/PUR/plasticizer (1p1:1), and PUR with 33% plasticizer. However, a water film is formed between Au/SAM and conventional PVC membranes having 66% plasticizer and with less lipophilic monolayers uniquely based on a redox-active compound (θa ≈ 70°). The new solid-contact ISEs are promising both for miniaturization and for improving lower detection limits.

CC 79-2 (Inorganic Analytical Chemistry)
Section cross-reference(s): **72**

ST self assembled monolayer solid contact polymeric membrane ion **electrode**; ion selective **electrode** self assembled monolayer solid contact membrane

IT Ion-selective **electrodes**
Lipophilicity
Membranes, nonbiological
Redox reaction
Self-assembled monolayers
(characterization of self-assembled monolayers of lipophilic redox-active compds. for solid-contact polymeric membrane ion-selective **electrodes**)

IT **242807-88-1**, 2,3-Bis[[[5-(1,2-dithiolan-3-yl)pentanoyl]oxy]methyl]-6,7-(ethylenedithio)tetrathiafulvalene 264882-28-2, Ethyl (8-sulfanyloctyl) 1,2-methano(60)fullerene-61,61-dicarboxylate
RL: ARU (Analytical role, unclassified); **DEV (Device component use)**; PRP (Properties); ANST (Analytical study); USES (Uses)
(characterization of self-assembled monolayers of lipophilic redox-active compds. for solid-contact polymeric membrane ion-selective **electrodes**)

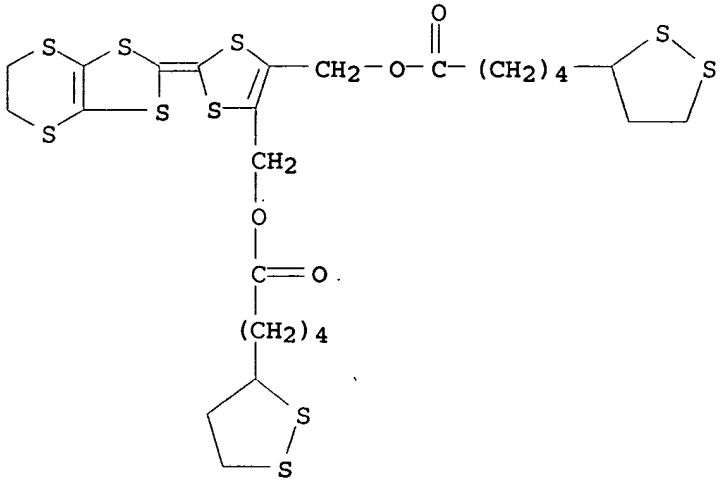
IT 111-88-6, n-Octanethiol
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(mixed monolayers; characterization of self-assembled monolayers of lipophilic redox-active compds. for solid-contact polymeric membrane ion-selective **electrodes**)

IT **242807-88-1**, 2,3-Bis[[[5-(1,2-dithiolan-3-yl)pentanoyl]oxy]methyl]-6,7-(ethylenedithio)tetrathiafulvalene
RL: ARU (Analytical role, unclassified); **DEV (Device component**

use); PRP (Properties); ANST (Analytical study); USES (Uses)
(characterization of self-assembled monolayers of lipophilic redox-active compds. for solid-contact polymeric membrane ion-selective **electrodes**)

RN 242807-88-1 HCAPLUS

CN 1,2-Dithiolane-3-pentanoic acid, [2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-1,3-dithiole-4,5-diyl]bis(methylene) ester (9CI) (CA INDEX NAME)



RE.CNT 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 16 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2002:144492 HCAPLUS

DN 137:127441

TI Deposition of organic **electrodes** based on wet process for organic devices

AU Saito, Kazuhiro; Kobayashi, Shunsuke

CS National Institute of Advanced Industrial Science and Technology, Tsukuba-shi, Ibaraki, 305-8568, Japan

SO Applied Physics Letters (2002), 80(8), 1489-1491
CODEN: APPLAB; ISSN: 0003-6951

PB American Institute of Physics

DT Journal

LA English

AB Patterned organic **electrodes** of charge-transfer complexes were deposited based on a printing method and solution chemical without a vacuum and high temperature The deposited organic **electrodes** showed large work functions, and they were examined as upper **electrodes** of organic photovoltaic cells. It is found that the charge-transfer complexes can be used as wiring material instead of metals without secondary treatment. In comparison with the cells using the conventional metals, a few different properties were observed for those with organic **electrodes.** The differences are assignable to the difference between the organic-organic and the organic-inorg. contacts.

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST wet deposition org **electrode** charge transfer complex org device

IT Photoelectric devices

(deposition of organic **electrodes** based on wet process for organic devices)

IT Charge transfer complexes
RL: **DEV (Device component use)**; PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); USES (Uses)
(deposition of organic **electrodes** based on wet process for organic devices)

IT **Electrodes**
(of organic photovoltaic cells; deposition of organic **electrodes** based on wet process for organic devices)

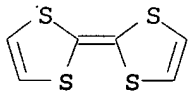
IT **40210-84-2P**, TTF-TCNQ 84632-22-4P
RL: **DEV (Device component use)**; PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); USES (Uses)
(deposition of organic **electrodes** based on wet process for organic devices)

IT **40210-84-2P**, TTF-TCNQ
RL: **DEV (Device component use)**; PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); USES (Uses)
(deposition of organic **electrodes** based on wet process for organic devices)

RN 40210-84-2 HCAPLUS
CN Propanedinitrile, 2,2'-(2,5-cyclohexadiene-1,4-diylidene)bis-, compd. with 2-(1,3-dithiol-2-ylidene)-1,3-dithiole (1:1) (9CI) (CA INDEX NAME)

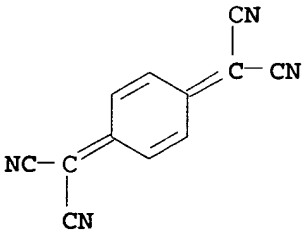
CM 1

CRN 31366-25-3
CMF C6 H4 S4



CM 2

CRN 1518-16-7
CMF C12 H4 N4



RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 17 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:395725 HCAPLUS
DN 133:80773
TI Electropolymerization of tetrathiol- and tetrapyrrole-substituted tetrathiafulvalene derivatives and electrochemical properties of their

electropolymerized films
AU Nakai, Hidetaka; Tsuhiya, Youichi; Watanabe, Katsuhiko; Matsushita, Tsuyoshi; Ito, Seishiro; Yoshihara, Masakuni; Fujihara, Hisashi
CS Department of Applied Chemistry, Kinki University, Kowakae, Higashi-Osaka, 577-8502, Japan
SO Shikizai Kyokaishi (2000), 73(4), 176-181
CODEN: SKYOAO; ISSN: 0010-180X
PB Shikizai Kyokai
DT Journal
LA English
AB The electrochem. property of alkane-tetrathiol or alkane-tetrapyrrole containing tetrathiafulvalene (TTF) and a new type of electropolymn. using the TTF-derivatized tetrathiol are described. Glassy carbon and gold **electrodes** were modified by electropolymn. of the TTF-derived tetrathiol. The polymer films of the TTF-tetrathiol immobilized on glassy carbon and gold **electrodes** are remarkably stable to electrochem. recycling. The electrochem. behavior and the redox potentials of the polymer films of the TTF-tetrathiol depend on the nature of the counteranion of electrolyte or solvent. In contrast, the corresponding TTF-monothiol and TTF-tetrasulfide do not form the polymer films. The electrochem. property of the TTF-tetrathiol was compared with that of the corresponding TTF-tetrapyrrole.
CC 72-2 (**Electrochemistry**)
Section cross-reference(s): 28, 35, 36
ST electropolymerized tetrathiol tetrapyrrole substituted tetrathiafulvalene glassy carbon gold **electrode**; electropolymn tetrathiol tetrapyrrole substituted tetrathiafulvalene deriv
IT Polymerization
(electrochem., oxidative; of tetrakis(mercaptopropylthio)tetrathiafulvalene and tetrakis[(pyrrolyl)propylthio]tetrathiafulvalene on glassy carbon or gold in CH2Cl2 containing Bu4NPF6)
IT Chemically modified **electrodes**
(glassy carbon or gold with tetrakis(mercaptopropylthio)tetrathiafulvalene or tetrakis[(pyrrolyl)propylthio]tetrathiafulvalene polymers)
IT Cyclic voltammetry
(in oxidative polymerization of tetrakis(mercaptopropylthio)tetrathiafulvalene or tetrakis[(pyrrolyl)propylthio]tetrathiafulvalene on glassy carbon or gold in CH2Cl2 containing Bu4NPF6 and of homopolymers)
IT 279688-08-3
RL: PRP (Properties)
(attempted electrochem. polymerization of)
IT 1518-16-7, TCNQ
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(cyclic voltammetry on tetrakis[(pyrrolyl)propylthio]tetrathiafulvalene polymer-modified glassy carbon in CH2Cl2 containing Bu4NPF6)
IT 7440-44-0, Carbon, uses 7440-57-5, Gold, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(electrochem. oxidative polymerization of tetrakis(mercaptopropylthio)tetrathiafulvalene and tetrakis[(pyrrolyl)propylthio]tetrathiafulvalene on glassy carbon or gold in CH2Cl2 containing Bu4NPF6)
IT 3109-63-5, Tetrabutylammonium hexafluorophosphate
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(electrochem. oxidative polymerization of tetrakis(mercaptopropylthio)tetrathiafulvalene and tetrakis[(pyrrolyl)propylthio]tetrathiafulvalene on glassy carbon or gold in CH2Cl2 containing Bu4NPF6)

IT **279688-09-4P**
RL: **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PRP (Properties); RCT (Reactant); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(electrochem. preparation on glassy carbon **electrode** and cyclic voltammetry of TCNQ on glassy carbon **electrode** modified with)

IT **228557-05-9P**
RL: **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PRP (Properties); RCT (Reactant); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(electrochem. preparation on glassy carbon or gold **electrode** and cyclic voltammetry of glassy carbon and gold **electrode** modified with)

IT 228557-04-8, Tetrakis(3-mercaptopropylthio)tetrathiafulvalene
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(electropolymn. on glassy carbon or gold **electrodes** in CH2Cl2 containing Bu4NPF6)

IT 279688-05-0P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and attempted electrochem. polymerization of)

IT 279688-06-1P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and electropolymn. on glassy carbon or gold **electrodes** in CH2Cl2 containing Bu4NPF6)

IT 84356-34-3D, Tetrathiafulvalenetetrathiol, salts
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with bromo(pyrrolyl)propane or iodopropyl Me sulfide)

IT 93530-08-6, 3-Iodopropyl methyl sulfide 100779-91-7, 1-Bromo-3-(1-pyrrolyl)propane
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with tetrathiafulvalenetetrathiolate salt)

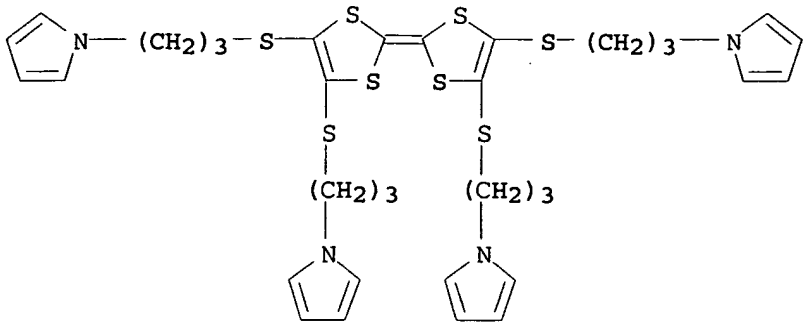
IT **279688-09-4P**
RL: **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PRP (Properties); RCT (Reactant); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(electrochem. preparation on glassy carbon **electrode** and cyclic voltammetry of TCNQ on glassy carbon **electrode** modified with)

RN 279688-09-4 HCAPLUS

CN 1H-Pyrrole, 1,1'-[[2-[4,5-bis[[3-(1H-pyrrol-1-yl)propyl]thio]-1,3-dithiol-2-ylidene]-1,3-dithiole-4,5-diyl]bis(thio-3,1-propanediyl)]bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

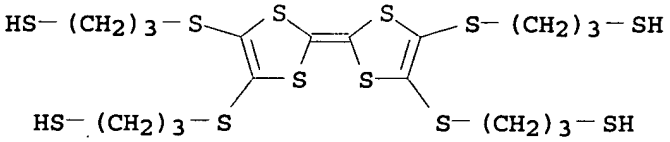
CRN 279688-06-1
CMF C34 H40 N4 S8



IT **228557-05-9P**
RL: **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PRP (Properties); RCT (Reactant); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(electrochem. preparation on glassy carbon or gold **electrode** and cyclic voltammetry of glassy carbon and gold **electrode** modified with)
RN 228557-05-9 HCAPLUS
CN 1-Propanethiol, 3,3'-[[2-[4,5-bis[(3-mercaptopropyl)thio]-1,3-dithiol-2-ylidene]-1,3-dithiole-4,5-diyl]bis(thio)]bis-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 228557-04-8
CMF C18 H28 S12



RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 18 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:261531 HCAPLUS
DN 132:342414
TI Lead-selective membrane potentiometric sensor based on a recently synthesized dimethylbenzotetrathiafulvalene
AU Fathi, M. R.; Darviche, F.; Ganjali, M. R.
CS Department of Chemistry, Tehran University, Tehran, Iran
SO Analytical Letters (2000), 33(6), 1025-1035
CODEN: ANALBP; ISSN: 0003-2719
PB Marcel Dekker, Inc.
DT Journal
LA English
AB A PVC membrane **electrode** for Pb ion based on dimethylbenzotetrathiafulvalene (DMBTTF)as membrane carrier was developed. The **electrode** exhibits a Nernstian response for Pb2- over a wide concentration range (10-2-10-5 M) with a limit of detection of 8 + 10-6M.

It has a response time of 20s and can be used for at least 2 mo without any considerable divergence in potentials. The proposed membrane sensor revealed good selectivities for Pb2- over a wide variety of other metal ions and could be used in pH range of 3.0-6.0. It was used as an indicator **electrode** in potentiometric titration of Pb ions in both H2O and 90% MeOH solns.

CC 79-2 (Inorganic Analytical Chemistry)
Section cross-reference(s): **72**

ST lead selective membrane ISE dimethylbenzotetrathiafulvalene based

IT Ion-selective **electrodes**
Membrane **electrodes**
(lead-selective membrane potentiometric sensor based on a recently synthesized dimethylbenzotetrathiafulvalene)

IT Titration
(potentiometric; lead-selective membrane potentiometric sensor based on a recently synthesized dimethylbenzotetrathiafulvalene for potentiometric titration of lead)

IT 9002-86-2, Ethene, chloro-, homopolymer
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(lead-selective PVC membrane potentiometric sensor based on a recently synthesized dimethylbenzotetrathiafulvalene)

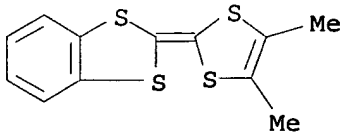
IT 7439-92-1, Lead, analysis
RL: ANT (Analyte); ANST (Analytical study)
(lead-selective membrane potentiometric sensor based on a recently synthesized dimethylbenzotetrathiafulvalene)

IT **65220-59-9**
RL: ARU (Analytical role, unclassified); **DEV (Device component use)**; ANST (Analytical study); USES (Uses)
(lead-selective membrane potentiometric sensor based on a recently synthesized dimethylbenzotetrathiafulvalene)

IT **65220-59-9**
RL: ARU (Analytical role, unclassified); **DEV (Device component use)**; ANST (Analytical study); USES (Uses)
(lead-selective membrane potentiometric sensor based on a recently synthesized dimethylbenzotetrathiafulvalene)

RN 65220-59-9 HCAPLUS

CN 1,3-Benzodithiole, 2-(4,5-dimethyl-1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)




RE.CNT 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 19 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2000:133494 HCAPLUS

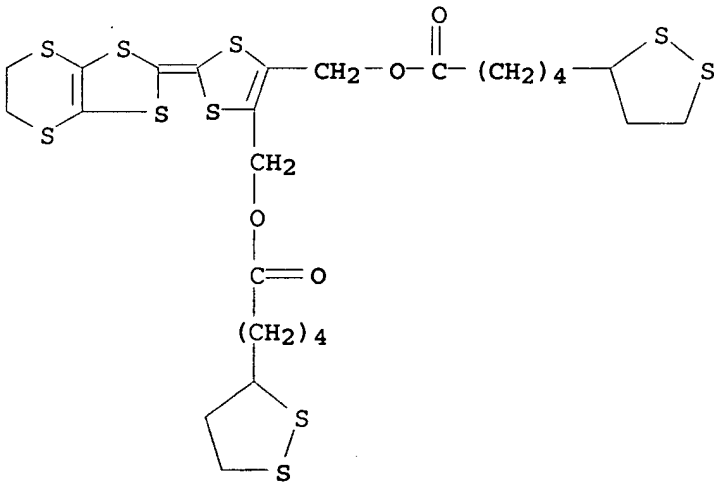
DN 132:302545

TI Redox-active self-assembled monolayers as novel solid contacts for ion-selective **electrodes**

AU Fibbioli, Monia; Enger, Olivier; Diederich, Francois; Pretsch, Erno; Bandyopadhyay, Krisanu; Liu, Sheng-Gao; Echegoyen, Luis; Buhlmann, Philippe

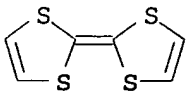
CS Lab. Org. Chem., Swiss Federal Institute of Technology (ETH), Zurich,

CH-8092, Switz.
SO Chemical Communications (Cambridge) (2000), (5), 339-340
CODEN: CHCOFS; ISSN: 1359-7345
PB Royal Society of Chemistry
DT Journal
LA English
AB A new methodol. to fabricate solid-contact ion-selective **electrodes** (SC-ISEs) using SAMs of a lipophilic redox-active compound to facilitate the charge transfer across the interface leads to improved potential stability and prevents redox or O2 interference of valinomycin-based SC-ISEs.
CC 79-2 (Inorganic Analytical Chemistry)
Section cross-reference(s): **72**
ST self assembled monolayer solid contact ion selective **electrode**
IT Ion-selective **electrodes**
Self-assembled monolayers
(redox-active self-assembled monolayers as novel solid contacts for ion-selective **electrodes**)
IT **242807-88-1** 264882-28-2
RL: ARU (Analytical role, unclassified); **DEV (Device component use)**; ANST (Analytical study); USES (Uses)
(redox-active self-assembled monolayers as novel solid contacts for ion-selective **electrodes**)
IT 7440-09-7, Potassium, analysis
RL: ANT (Analyte); ANST (Analytical study)
(redox-active self-assembled monolayers as novel solid contacts for ion-selective **electrodes** for determination of)
IT **242807-88-1**
RL: ARU (Analytical role, unclassified); **DEV (Device component use)**; ANST (Analytical study); USES (Uses)
(redox-active self-assembled monolayers as novel solid contacts for ion-selective **electrodes**)
RN 242807-88-1 HCAPLUS
CN 1,2-Dithiolane-3-pentanoic acid, [2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-1,3-dithiole-4,5-diyl]bis(methylene) ester (9CI) (CA INDEX NAME)



RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 20 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1998:581723 HCAPLUS
DN 129:254100
TI Supported planar lipid bilayers (s-BLMs) as electrochemical biosensors
AU Tien, H. T.; Ottova, A. L.
CS Membrane Biophysics Lab (Giltner Hall), Dep. Physiology, Michigan State Univ., East Lansing, MI, 48824, USA
SO Electrochimica Acta (1998), 43(23), 3587-3610
CODEN: ELCAAV; ISSN: 0013-4686
PB Elsevier Science Ltd.
DT Journal; General Review
LA English
AB A review with 120 refs. This paper presents a description of current research on the use of metal and hydrogel supported bilayer lipid membranes (s-BLMs and sb-BLMs) in the area of biosensor development. Simple and straight-forward exptl. techniques for making these types of probes are given in some details. Emphasis is placed on the potential applications of these planar lipid bilayer-based probes. Among the topics covered include ion sensors, antigen-antibody interactions via elec. detection, probes for mol. species, supported BLMs doped with fullerenes and photoelec. effects in C60-containing BLMs.
CC 80-0 (Organic Analytical Chemistry)
Section cross-reference(s): 9, **72**, 79
ST supported lipid bilayer electrochem biosensor review; planar lipid bilayer electrochem biosensor review
IT Biosensors
Biosensors
Sensors
(electrochem.; supported planar lipid bilayers as electrochem. biosensors)
IT Ionophores
(modification on supported planar lipid bilayers as electrochem. biosensors)
IT Enzymes, analysis
Fullerenes
Ion channel
Peptides, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(modification on supported planar lipid bilayers as electrochem. biosensors)
IT Equivalent electric circuits
(of supported planar lipid bilayers electrochem. biosensors)
IT pH
(pH sensitive compds. modified supported planar lipid bilayers as electrochem. biosensors)
IT **Electrodes**
(supported planar lipid bilayers as electrochem. biosensors)
IT 102-54-5D, Ferrocene, derivs. 1518-16-7, TCNQ **31366-25-3**, TTF
RL: ARU (Analytical role, unclassified); **DEV (Device component use)**; ANST (Analytical study); USES (Uses)
(modification on supported planar lipid bilayers as electrochem. biosensors)
IT **31366-25-3**, TTF
RL: ARU (Analytical role, unclassified); **DEV (Device component use)**; ANST (Analytical study); USES (Uses)
(modification on supported planar lipid bilayers as electrochem. biosensors)
RN 31366-25-3 HCAPLUS
CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



RE.CNT 121 THERE ARE 121 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 21 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1998:250904 HCAPLUS
DN 128:297081
TI Secondary nonaqueous electrolyte batteries containing ethylenic additives
IN Negi, Masayuki; Tsukahara, Jiro; Ishizuka, Hiroshi
PA Fuji Photo Film Co., Ltd., Japan; UBE Industries, Ltd.
SO Jpn. Kokai Tokkyo Koho, 18 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | JP 10106624 | A2 | 19980424 | JP 1996-251960 | 19960924 |
| | ~~JP 3661301~~ | B2 | 20050615 | | |
| | JP 2004349268 | A2 | 20041209 | JP 2004-249130 | 20040827 |
| | JP 2005019416 | A2 | 20050120 | JP 2004-249131 | 20040827 |
| | JP 3661701 | B2 | 20050622 | | |
| | JP 2005174945 | A2 | 20050630 | JP 2005-2097 | 20050107 |
| | JP 2005108862 | A2 | 20050421 | JP 2005-7507 | 20050114 |
| | JP 2005276844 | A2 | 20051006 | JP 2005-139475 | 20050512 |
| PRAI | JP 1996-251960 | A3 | 19960924 | | |
| | JP 2005-7507 | A3 | 20050114 | | |

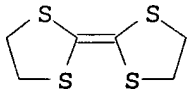
OS MARPAT 128:297081
AB Secondary Li batteries contain an organic compound of formula (R1)(R3)C(:C)(R2)[X(R5)n](R4) (I), in which R1, R2, R3, R4, and R5 are H, alkyl, cycloalkyl, alkoxy, alkenyl, alkynyl, aralkyl, aryl, halogen, CN, NO2, OH, formyl, aryloxy, alkylthio, arylthio, acyloxy, sulfonyloxy, amino, alkylamino, arylamino, carbamide, sulfonamide, oxycarbonylamino, oxysulfonylamino, ureido, acyl, oxycarbonyl, carbamoyl, sulfonyl, sulfenyl, oxysulfonyl, sulfamoyl, carboxylic acid or carboxylate salt group, sulfonic acid or sulfonate salt group, phosphonic acid or phosphonate salt group, or heterocyclic group, or rings formed between R1, R2, R3, R4, and R5 with or without substituents on the rings, X = O, S, or N, and n = 0 or 1. The additives may be contained in battery electrolyte containing LiBF4 of LiPF6.
IC ICM H01M010-40
ICS H01M010-40; H01M004-02; H01M004-58
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST lithium battery electrolyte ethylenic additive
IT Battery electrolytes
(electrolyte solns. containing ethylenic additives for secondary lithium batteries)
IT 191231-18-2
RL: **DEV (Device component use)**; USES (Uses)
(**anodes** for secondary lithium batteries using electrolyte solns. containing ethylenic additives)
IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 14283-07-9, Lithium fluoroborate 21324-40-3, Lithium hexafluorophosphate

RL: **DEV (Device component use)**; USES (Uses)
(electrolyte solns. containing ethylenic additives for secondary lithium batteries)

IT 110-87-2 542-28-9 694-85-9 765-12-8, 3,6,9,12-Tetraoxatetradeca-1,13-diene 872-36-6, 1,3-Dioxol-2-one 930-35-8, 1,3-Dithiole-2-thione 7148-07-4 7182-08-3 16330-21-5 **24719-68-4** 37830-90-3 105439-99-4 205682-75-3
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte solns. containing ethylenic additives for secondary lithium batteries)

IT **24719-68-4**
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte solns. containing ethylenic additives for secondary lithium batteries)

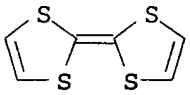
RN 24719-68-4 HCAPLUS
CN 1,3-Dithiolane, 2-(1,3-dithiolan-2-ylidene)- (9CI) (CA INDEX NAME)



L28 ANSWER 22 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1997:749409 HCAPLUS
DN 128:81244
TI The room-temperature ionic liquid 1-ethyl-3-methylimidazolium tetrafluoroborate: electrochemical couples and physical properties
AU Fuller, Joan; Carlin, Richard T.; Osteryoung, Robert A.
CS Department of Chemistry, North Carolina State University, Raleigh, NC, 27695-8204, USA
SO Journal of the Electrochemical Society (1997), 144(11), 3881-3886
CODEN: JESOAN; ISSN: 0013-4651
PB Electrochemical Society
DT Journal
LA English
AB The room temperature ionic liquid 1-ethyl-3-methylimidazolium tetrafluoroborate (EMIBF4) was demonstrated as a versatile electrolyte by examining 3 representative electrochem. couples: ferrocene and tetrathiafulvalene oxidns. and Li ion reduction Square-wave voltammetric data for ferrocene oxidation were fit to a reversible 1-electron process using the COOL algorithm to give a half-wave potential of 0.490 V vs. Al/Al(III) and a diffusion coefficient of 5.1 + 10-7 cm2/s. The 2-electron oxidation of tetrathiafulvalene was reversible and proceeded through 2 consecutive 1-electron steps; although data collected at lower square-wave frequencies indicated a slow precipitation of the TTF+ species. The Li ion was reduced to Li metal at a Pt **electrode** following the addition of H2O to the EMIBF4 electrolyte, whereas Li ion reduction at an Al wire produced the β-LiAl alloy. Conductivities and kinematic viscosities of EMIBF4 were measured from 20 to 100°C and had values of 14 mS/cm and 0.275 cm2/s, resp., at 25°C.
CC 72-2 (Electrochemistry)
Section cross-reference(s): **52**
ST room temp ionic liq ethylmethylimidazolium tetrafluoroborate; electrochem couple phys property ethylmethylimidazolium tetrafluoroborate; battery fuel cell ethylmethylimidazolium tetrafluoroborate liq
IT Fuel cells
Secondary batteries

(electrochem. couples in and phys. properties of room-temperature ionic liquid
ethylmethylimidazolium tetrafluoroborate for)
IT Viscosity
(kinematic; of ethylmethylimidazolium tetrafluoroborate room-temperature ionic liquid)
IT Electric conductivity
(of ethylmethylimidazolium tetrafluoroborate room-temperature ionic liquid)
IT Oxidation, electrochemical
(of ferrocene and tetrathiafulvalene in ethylmethylimidazolium tetrafluoroborate room-temperature ionic liquid)
IT Reduction, electrochemical
(of lithium ions in ethylmethylimidazolium tetrafluoroborate room-temperature ionic liquid at platinum and aluminum **electrodes**)
IT 12615-39-3P, Aluminum 50, lithium 50 (atomic)
RL: **DEV (Device component use)**; PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**anodes**; formation of β-LiAl alloy by electroredn. of lithium ions in ethylmethylimidazolium tetrafluoroborate room-temperature ionic liquid at aluminum **electrode**)
IT 52627-24-4P, Cobalt lithium oxide
RL: **DEV (Device component use)**; PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**cathodes**; electrochem. charge and discharge of lithium ions in ethylmethylimidazolium tetrafluoroborate room-temperature ionic liquid at β-LiAl alloy **anode** and LixCoO2 **cathode**, resp.)
IT 143314-16-3, 1-Ethyl-3-methylimidazolium tetrafluoroborate
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(electrochem. couples in and phys. properties of room-temperature ionic liquid)
IT 102-54-5, Ferrocene
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(electrochem. oxidation of ferrocene in ethylmethylimidazolium tetrafluoroborate room-temperature ionic liquid)
IT **31366-25-3**, Tetrathiafulvalene
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(electrochem. oxidation of tetrathiafulvalene in ethylmethylimidazolium tetrafluoroborate room-temperature ionic liquid)
IT 7439-93-2, Lithium, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(electrochem. reduction of lithium ion in ethylmethylimidazolium tetrafluoroborate room-temperature ionic liquid)
IT 7429-90-5, Aluminum, uses
RL: **DEV (Device component use)**; PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(electroredn. of lithium ions in ethylmethylimidazolium tetrafluoroborate room-temperature ionic liquid at platinum and aluminum **electrodes**)
IT 7440-06-4, Platinum, uses
RL: **DEV (Device component use)**; PRP (Properties); USES (Uses)
(electroredn. of lithium ions in ethylmethylimidazolium tetrafluoroborate room-temperature ionic liquid at platinum and aluminum **electrodes**)
IT **31366-25-3**, Tetrathiafulvalene

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(electrochem. oxidation of tetrathiafulvalene in ethylmethylimidazolium tetrafluoroborate room-temperature ionic liquid)
RN 31366-25-3 HCAPLUS
CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 23 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1997:623691 HCAPLUS
DN 127:284721
TI Dissolution processes at TTF-TCNQ single-crystal **electrodes**: a dynamic in situ electrochemical scanning tunneling microscopy study
AU Bartlett, P. N.; Tong, X. Q.
CS Department of Chemistry, University of Southampton, Southampton, SO17 1BJ, UK
SO Journal of Physical Chemistry B (1997), 101(42), 8540-8549
CODEN: JPCBFK; ISSN: 1089-5647
PB American Chemical Society
DT Journal
LA English
AB Surface transformations occurring at the (001) face of tetrathiafulvalene-tetracyanoquinodimethane (TTF-TCNQ) single crystals in aqueous solution were studied by in situ electrochem. scanning tunneling microscopy (ECSTM) both at equilibrium and under electrochem. driven dissoln. conditions. The TTF and TCNQ mols. present in segregated mol. stacks at the crystal surface were resolved at atomic resolution in different solns. and at various applied electrochem. potentials. The images display the same atomic features seen by STM in air. Surface features and defects on the mol. scale, such as flat terraces, ledges of monomol. height, kinks due to mols. of reduced coordination at the ends of mol. stacks, and vacancies within stacks due to missing mols., play a crucial part in the dissoln. processes at these **electrodes.** Observations of interfacial dissoln. and electrochem. reactions under controlled potential by dynamic ECSTM imaging at a mol. level suggest that the kinetics of these processes are dependent on the orientations of surface ledges and kink d. in relation to the crystallog. axes of the crystal. The mechanism of dissoln. is found to involve preferential removal of mols. along the mol. stacks in a mol.-by-mol. sequence occurring at the kink sites. These phenomena can be rationalized in terms of their relation to the anisotropic properties of this material which arise from strong intermol. bonding and partial charge transfer between the mols. within the mol. stacks but with weaker interactions between stacks. Effects caused by the proximity of the STM tip leading to local modification of the interfacial electrochem. also were observed and are discussed.
CC 72-2 (**Electrochemistry**)
Section cross-reference(s): 66
ST dissoln tetrathiafulvalene tetracyanoquinodimethane crystal **electrode** STM; electrochem scanning tunneling microscopy tetrathiafulvalene tetracyanoquinodimethane; scanning tunneling microscopy tetrathiafulvalene tetracyanoquinodimethane **electrode**; in situ microscopy tetrathiafulvalene tetracyanoquinodimethane **electrode**

; surface imaging tetrathiafulvalene tetracyanoquinodimethane **electrode**

IT Imaging
Interfacial structure
Oxidation, electrochemical
Scanning tunneling microscopy
Surface structure
(dissoln. processes at tetrathiafulvalene-tetracyanoquinodimethane single-crystal **electrodes**: dynamic in situ electrochem. scanning tunneling microscopy study)

IT Redox reaction
(electrochem.; of tetrathiafulvalene-tetracyanoquinodimethane single-crystal **electrodes**: dynamic in situ electrochem. scanning tunneling microscopy study)

IT 1283-90-5, Lithium tetracyanoquinodimethane
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(cyclic voltammetry at Pt microelectrode in NaCl solution)

IT **40210-84-2**, Tetrathiafulvalene tetracyanoquinodimethane
RL: **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(dissoln. processes at tetrathiafulvalene-tetracyanoquinodimethane single-crystal **electrodes**: dynamic in situ electrochem. scanning tunneling microscopy study)

IT 7447-41-8, Lithium chloride, uses 7647-14-5, Sodium chloride, uses
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(dissoln. processes at tetrathiafulvalene-tetracyanoquinodimethane single-crystal **electrodes**: dynamic in situ electrochem. scanning tunneling microscopy study in solution containing)

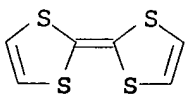
IT **40210-84-2**, Tetrathiafulvalene tetracyanoquinodimethane
RL: **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(dissoln. processes at tetrathiafulvalene-tetracyanoquinodimethane single-crystal **electrodes**: dynamic in situ electrochem. scanning tunneling microscopy study)

RN 40210-84-2 HCAPLUS

CN Propanedinitrile, 2,2'-(2,5-cyclohexadiene-1,4-diylidene)bis-, compd. with 2-(1,3-dithiol-2-ylidene)-1,3-dithiole (1:1) (9CI) (CA INDEX NAME)

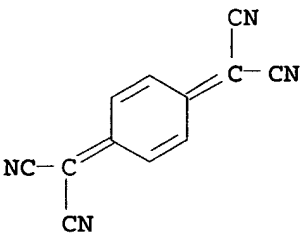
CM 1

CRN 31366-25-3
CMF C6 H4 S4




CM 2

CRN 1518-16-7
CMF C12 H4 N4



RE.CNT 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 24 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1997:240244 HCAPLUS
DN 127:2650
TI TTF-TCNQ complex-based printed biosensor for long-term operation
AU Khan, Golam Faruque
CS New Materials Research Dep., Ciba-Geigy Japan Ltd., Takarazuka, 665, Japan
SO Electroanalysis (1997), 9(4), 325-329
CODEN: ELANEU; ISSN: 1040-0397
PB VCH
DT Journal
LA English
AB A printed amperometric glucose sensor based on glucose oxidase (GOD) adsorbed on crystals of tetrathiafulvalene-tetracyanoquinodimethane (TTF-TCNQ) is described. The sensitivity and the stability of the sensor are affected by the binder and solvent used for the preparation of the GOD/TTF-TCNQ paste. The sensors are continuously used in a flow injection anal. (FIA) system under continuous polarization at 0.15 V (vs. Ag/AgCl) at 37°. The developed sensors exhibit a large response current, an extended linear range and O independence. The sensors can be used for more than 3 mo. The GOD/TTF-TCNQ paste is suitable for the preparation of planar sensor by screen printing method.
CC 9-7 (Biochemical Methods)
Section cross-reference(s): **72**
ST TTF TCNQ glucose oxidase amperometric biosensor; bioelectrode amperometric TTF TCNQ glucose oxidase; binder solvent amperometric enzyme **electrode**
IT Enzyme **electrodes**
Enzyme **electrodes**
(amperometric; effect of binder and solvent on printed amperometric biosensor based on glucose oxidase adsorbed on TTF-TCNQ crystals)
IT Polyesters, uses
RL: DEV (Device component use); MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(binder; effect of binder and solvent on printed amperometric biosensor based on glucose oxidase adsorbed on TTF-TCNQ crystals)
IT 9003-27-4, Polyisobutene
RL: DEV (Device component use); MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(binder; effect of binder and solvent on printed amperometric biosensor based on glucose oxidase adsorbed on TTF-TCNQ crystals)
IT 9001-37-0, Glucose oxidase **40210-84-2**
RL: **DEV (Device component use)**; PRP (Properties); USES (Uses)
(effect of binder and solvent on printed amperometric biosensor based on glucose oxidase adsorbed on TTF-TCNQ crystals)
IT 124-17-4 142-82-5, Heptane, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)

(solvent; effect of binder and solvent on printed amperometric biosensor based on glucose oxidase adsorbed on TTF-TCNQ crystals)

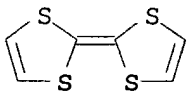
IT **40210-84-2**
RL: **DEV (Device component use)**; PRP (Properties); USES (Uses)
(effect of binder and solvent on printed amperometric biosensor based on glucose oxidase adsorbed on TTF-TCNQ crystals)

RN 40210-84-2 HCAPLUS

CN Propanedinitrile, 2,2'-(2,5-cyclohexadiene-1,4-diylidene)bis-, compd. with 2-(1,3-dithiol-2-ylidene)-1,3-dithiole (1:1) (9CI) (CA INDEX NAME)

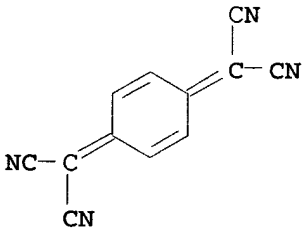
CM 1

CRN 31366-25-3
CMF C6 H4 S4



CM 2

CRN 1518-16-7
CMF C12 H4 N4



L28 ANSWER 25 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1997:166656 HCAPLUS

DN 126:298515

TI Study of Eastman AQ/tetrathiafulvalene-modified carbon fiber microdisk **electrodes**

AU Tian, Min; Dong, Shaojun

CS Lab. Electroanalytical Chem., Chinese Acad. Sci., Changchun, 130022, Peop. Rep. China

SO Fenxi Huaxue (1997), 25(2), 125-129
CODEN: FHHHDT; ISSN: 0253-3820

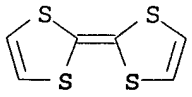
PB Zhongguo Huaxuehui "Fenxi Huaxue" Bianji Weiyuanhui

DT Journal

LA Chinese

AB Tetrathiafulvalene (TTF) was coated onto microelectrode surface with Eastman-AQ 29D polymer film and the electrochem. behavior of the resulting modified **electrodes** was studied. The effects of dipping time, scan rate and supporting electrolyte on the modified microelectrode were examined . TTF is oxidized in two consecutive, 1-electron steps to TTF+ and then to TTF2+ in the film. The equilibrium constant of TTF + TTF++ → 2TTF+ in the Eastman-AQ 29D film determined by cyclic voltammetry is 1.25 + 106.

CC 72-2 (**Electrochemistry**)
Section cross-reference(s): 28, 68
ST Eastman AQ modified carbon fiber microelectrode; tetrathiafulvalene electrochem oxidn film modified microelectrode
IT Carbon fibers, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(Eastman AQ/tetrathiafulvalene-modified carbon fiber microdisk **electrodes**)
IT Equilibrium constant
(of formation of tetrathiafulvalene(1+) from tetrathiafulvalene and tetrathiafulvalene(2+) on modified carbon fiber microdisk **electrodes**)
IT Diffusion
(of tetrathiafulvalene in Eastman AQ 29D film on modified carbon fiber microdisk **electrodes**)
IT Oxidation, electrochemical
(of tetrathiafulvalene on Eastman AQ/tetrathiafulvalene-modified carbon fiber microdisk **electrodes**)
IT Microelectrodes
(voltammetric; Eastman AQ/tetrathiafulvalene-modified carbon fiber microdisk **electrodes**)
IT 54590-62-4, AQ 29D
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(Eastman AQ/tetrathiafulvalene-modified carbon fiber microdisk **electrodes**)
IT 35079-56-2, Tetrathiafulvalene radical ion(1+) 35079-57-3, 2,2'-Bi-1,3-dithiol-1-ium
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)
(formation on Eastman AQ/tetrathiafulvalene-modified carbon fiber microdisk **electrodes**)
IT **31366-25-3**, Tetrathiafulvalene
RL: **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(study of Eastman AQ/tetrathiafulvalene-modified carbon fiber microdisk **electrodes**)
IT 2537-36-2, Tetramethylammonium perchlorate 2567-83-1, Tetraethylammonium perchlorate 7601-89-0, Sodium perchlorate
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(study of Eastman AQ/tetrathiafulvalene-modified carbon fiber microdisk **electrodes** in solution containing supporting electrolyte of)
IT **31366-25-3**, Tetrathiafulvalene
RL: **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(study of Eastman AQ/tetrathiafulvalene-modified carbon fiber microdisk **electrodes**)
RN 31366-25-3 HCAPLUS
CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)




L28 ANSWER 26 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1996:752599 HCAPLUS

DN 126:149664
TI Voltammetric characterization of an insoluble tetrathiafulvalene derivative by means of modified carbon paste **electrode**
AU Lubert, K.-H.; Wagner, M.; Olk, R.-M.
CS University of Leipzig, Institute of Inorganic Chemistry, Talstrae 35, D-04103 Leipzig, Germany
SO Analytica Chimica Acta (1996), 336(1-3), 77-84
CODEN: ACACAM; ISSN: 0003-2670
PB Elsevier
DT Journal
LA English
AB An insol. tetrathiafulvalene (TTF) derivative (5,6,8,9,11,12,14,15-octahydro-2-(5,6,8,9,11,12,14,15-octahydro-1,3-dithiolo[4,5-k][1,4,7,10,13]trithiadiselenacyclopentadecin-2-ylidene)-1,3-dithiolo[4,5-k][1,4,7,10,13]trithiadiselenacyclopentadecin) is voltammetrically characterized by a carbon paste **electrode** in acetonitrile as solvent. The **electrode** is modified with the TTF derivative by adding a certain amount to the carbon paste. For the modification of the **electrode** an amount of .apprx.4 + 10-7 moles of the TTF derivative (only 0.5% with respect to the mass of the carbon paste) is necessary. After the initial oxidation of the modified **electrode** the characteristic voltammograms of TTF with two oxidation peaks and two corresponding reduction peaks are observed The influence of anodic treatment was studied and the voltammetric behavior during the initial oxidation is discussed. The TTF derivative is able to mediate oxidns. as shown by the reaction of bromide at the modified **electrode.**
CC 72-2 (**Electrochemistry**)
Section cross-reference(s): 22
ST voltammetric characterization insoluble tetrathiafulvalene deriv carbon; electrochem oxidn tetrathiafulvalene deriv carbon paste; bromide electrochem oxidn tetrathiafulvalene deriv mediator
IT Oxidation, electrochemical
(of carbon paste **electrode** modified with tetrathiafulvalene derivative in acetonitrile)
IT Cyclic voltammetry
(of tetrathiafulvalene derivative in modified carbon paste **electrode** in acetonitrile)
IT Oxidation potential
Reduction potential
(peak; of tetrathiafulvalene derivative in modified carbon paste **electrode** in acetonitrile)
IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(carbon paste **electrode** modified with tetrathiafulvalene derivative in voltammetric characterization)
IT 1923-70-2, Tetrabutylammonium perchlorate
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(cyclic voltammetry of carbon paste **electrode** and carbon paste **electrode** modified with tetrathiafulvalene derivative in acetonitrile containing)
IT 186541-33-3 186541-35-5
RL: FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); FORM (Formation, nonpreparative); PROC (Process); RACT (Reactant or reagent)
(electrooxidative formation and elec. potential of redox couple)
IT 24959-67-9, Bromide, properties
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(oxidation mediated by tetrathiafulvalene derivative in modified carbon paste

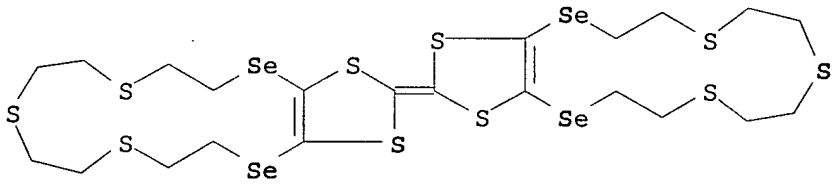
**electrode)**

IT **182124-32-9**, 1,3-Dithiolo[4,5-k][1,4,7,10,13]trithiadiselenacyclop entadecin, 5,6,8,9,11,12,14,15-octahydro-2-(5,6,8,9,11,12,14,15-octahydro-1,3-dith iolo[4,5-k][1,4,7,10,13]trithiadiselenacyclopentadecin-2-ylidene)-
RL: **DEV (Device component use)**; PRP (Properties); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(voltammetric characterization of insol. tetrathiafulvalene derivative by means of modified carbon paste **electrode**)

IT **182124-32-9**, 1,3-Dithiolo[4,5-k][1,4,7,10,13]trithiadiselenacyclop entadecin, 5,6,8,9,11,12,14,15-octahydro-2-(5,6,8,9,11,12,14,15-octahydro-1,3-dith iolo[4,5-k][1,4,7,10,13]trithiadiselenacyclopentadecin-2-ylidene)-
RL: **DEV (Device component use)**; PRP (Properties); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(voltammetric characterization of insol. tetrathiafulvalene derivative by means of modified carbon paste **electrode**)

RN 182124-32-9 HCAPLUS

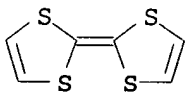
CN 1,3-Dithiolo[4,5-k][1,4,7,10,13]trithiadiselenacyclopentadecin, 5,6,8,9,11,12,14,15-octahydro-2-(5,6,8,9,11,12,14,15-octahydro-1,3-dithiolo[4,5-k][1,4,7,10,13]trithiadiselenacyclopentadecin-2-ylidene)- (9CI) (CA INDEX NAME)




RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 27 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1996:662810 HCAPLUS
DN 126:44484
TI Organic charge transfer complex-based printable biosensor
AU Khan, Golam Faruque
CS International Research Laboratories, Ciba Geigy Japan Ltd., Takarazuka, 665, Japan
SO Biosensors & Bioelectronics (1996), 11(12), 1221-1227
CODEN: BBIOE4; ISSN: 0956-5663
PB Elsevier Advanced Technology
DT Journal
LA English
AB This paper describes the preparation of an organic charge transfer complex (CTC)-based printable enzyme **electrode.** CTC crystals were prepared by mixing TCNQ powder with TTF solution (in acetonitrile). Glucose oxidase (GOD) was adsorbed at the CTC crystal surface in a monolayer. A printable paste was prepared by mixing GOD-adsorbed crystals with a binder and a solvent. This paste was applied to an **electrode** cavity and vacuum dried. A thin layer of gelatin was cast on the paste-filled dried **electrode** and crosslinked with glutaraldehyde in the dry condition. The sensors were fixed in a flow-injection system and continuously polarized at 0.15 V and 37°, and the samples were automatically injected every 30 min. The developed sensors produced a huge response current with an extended linear range of detection (0-100 mM), and the response was unaffected by the presence of normal O in the buffer solution The sensor showed excellent stability. Performance of the

sensors was significantly influenced by the binder used.
CC 9-1 (Biochemical Methods)
Section cross-reference(s): **72**
ST org charge transfer complex printable biosensor; enzyme **electrode** printable charge transfer complex
IT Biosensors
Crosslinking
Enzyme **electrodes**
(organic charge-transfer complex-based printable enzyme **electrode**)
IT Gelatins, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(organic charge-transfer complex-based printable enzyme **electrode**)
IT Charge transfer complexes
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(organic charge-transfer complex-based printable enzyme **electrode**)
IT 9001-37-0D, Glucose oxidase, immobilized
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(organic charge-transfer complex-based printable enzyme **electrode**)
IT 9003-27-4, Polyisobutylene
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(organic charge-transfer complex-based printable enzyme **electrode**)
IT 1518-16-7, TCNQ **31366-25-3**, TTF
RL: ARU (Analytical role, unclassified); **DEV (Device component use)**; ANST (Analytical study); USES (Uses)
(organic charge-transfer complex-based printable enzyme **electrode**)
IT **31366-25-3**, TTF
RL: ARU (Analytical role, unclassified); **DEV (Device component use)**; ANST (Analytical study); USES (Uses)
(organic charge-transfer complex-based printable enzyme **electrode**)
RN 31366-25-3 HCAPLUS
CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



L28 ANSWER 28 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1996:618621 HCAPLUS
DN 125:252933
TI Battery **electrodes** and secondary batteries thereof
IN Inoe, Gakuji; Tsukamoto, Jun
PA Toray Industries, Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1
PATENT NO. KIND DATE APPLICATION NO. DATE

| | | | | | |
|---|---|---|---|---|---|
| PI | JP 08195199 | A2 | 19960730 | JP 1995-7234 | 19950120 |
| PRAI | JP 1995-7234 | | 19950120 | | |

AB The **electrodes** contain an electron donor compound capable of forming cation radicals forming salts with the anions in the electrolyte. The compound is selected from pyrene, phenothiazine, and bis(ethylenedithio)tetrathiafulvalene; the **cathodes** are LixCoyNi1-yO2 (0 <x ≤1.0, yr ≤1.0); and the **anodes** are short carbon fiber **anodes.**

IC ICM H01M004-58
ICS H01M004-02; H01M004-60; H01M010-40

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST pyrene battery **electrode** additive; battery **electrode** additive electron donor compd; phenothiazine battery **electrode** additive; bisethylenedithiotetrathiafulvalene battery **electrode** additive; carbon fiber battery **anode** additive; lithium metal mixed oxide **cathode** additive; cobalt lithium oxide **cathode** additive; nickel lithium oxide **cathode** additive

IT Carbon fibers, uses
RL: **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(electron donor additives for carbon fiber **anodes** in secondary lithium batteries)

IT **Anodes**
(battery, electron donor additives for carbon fiber **anodes** in secondary lithium batteries)

IT **Cathodes**
(battery, electron donor additives for lithium containing metal oxide **cathodes** in secondary lithium batteries)

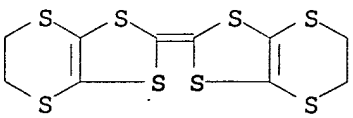
IT 92-84-2, Phenothiazine 129-00-0, Pyrene, uses **66946-48-3**
RL: MOA (Modifier or additive use); USES (Uses)
(electron donor additives for **electrodes** in secondary lithium batteries)

IT 12190-79-3, Cobalt lithium oxide (CoLiO2) 111706-40-2, Cobalt lithium oxide (CoLi0-1O2) 143778-34-1, Lithium nickel oxide (Li0-1NiO2) 162004-08-2, Cobalt lithium nickel oxide ((Co,Li,Ni)O2)
RL: **DEV (Device component use)**; PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(electron donor additives for lithium containing metal oxide **cathodes** in secondary lithium batteries)

IT **66946-48-3**
RL: MOA (Modifier or additive use); USES (Uses)
(electron donor additives for **electrodes** in secondary lithium batteries)

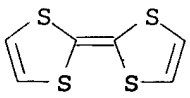
RN 66946-48-3 HCAPLUS

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



L28 ANSWER 29 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1995:1004091 HCAPLUS
DN 124:69700

TI Digital simulation of cyclic voltammetry for response of enzyme-mediator modified **electrode**
AU Kong, Ji-Lie; Deng, Jia-Qi
CS Dept. Chem., Fudan Univ., Shanghai, 200433, Peop. Rep. China
SO Gaodeng Xuexiao Huaxue Xuebao (1995), 16(7), 1024-7
CODEN: KTHPDM; ISSN: 0251-0790
PB Gaodeng Jiaoyu Chubanshe
DT Journal
LA Chinese
AB Digital simulation was employed to study the cyclic voltammetry (CV) response of enzyme-mediator modified **electrode.** The digital model was built and the effect of kinetic parameters on CV curves was discussed. The digital simulation could help to devise or improve the properties of such kind of enzyme-mediator modified **electrode.**
CC 72-2 (**Electrochemistry**)
Section cross-reference(s): 7
ST digital simulation cyclic voltammetry; enzyme mediator modified **electrode**
IT **Electrodes**
(digital simulation of cyclic voltammetry for response of enzyme-mediator modified **electrode**)
IT Voltammetry
(cyclic, digital simulation of cyclic voltammetry for response of enzyme-mediator modified **electrode**)
IT 7440-44-0, Carbon, uses 9001-37-0, Glucose oxidase **31366-25-3**, TTF
RL: **DEV (Device component use)**; USES (Uses)
(cyclic voltammetry of TTF-glucose oxidase-glassy carbon **electrode**)
IT **31366-25-3**, TTF
RL: **DEV (Device component use)**; USES (Uses)
(cyclic voltammetry of TTF-glucose oxidase-glassy carbon **electrode**)
RN 31366-25-3 HCAPLUS
CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



L28 ANSWER 30 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1995:719845 HCAPLUS
DN 123:245699
TI An amperometric lactate sensor employing tetrathiafulvalene in Nafion film as electron shuttle
AU Liu, Haiying; Deng, Jiaqi
CS Dep. Chemistry, Fudan Univ., Shanghai, 200433, Peop. Rep. China
SO Electrochimica Acta (1995), 40(12), 1845-9
CODEN: ELCAAV; ISSN: 0013-4686
PB Pergamon
DT Journal
LA English
AB The development of an amperometric sensor using tetrathiafulvalene (TTF) as an electron shuttle between immobilized lactate oxidase and a glassy carbon **electrode** is described. The problem of mediator leaking in **electrodes** using TTF is overcome by employing Nafion membrane that prevents leaching of pos. TTF+ ions by electrostatic attraction.

Stability, interference, and the factors such as oxygen, applied potential, and pH influencing the performance of the lactate sensor were examined and discussed. The response of the sensor to lactate under N2 saturation reaches 95% steady-state current within 40 s.

CC 80-2 (Organic Analytical Chemistry)
Section cross-reference(s): **72**

ST amperometric lactate sensor tetrathiafulvalene Nafion film

IT Sensors
(amperometric, amperometric lactate sensor employing tetrathiafulvalene in Nafion film as electron shuttle)

IT **Electrodes**
(amperometric, for lactate determination employing tetrathiafulvalene in Nafion film as electron shuttle)

IT Polyoxyalkylenes, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(fluorine- and sulfo-containing, ionomers, amperometric lactate sensor employing tetrathiafulvalene in Nafion film as electron shuttle)

IT Fluoropolymers
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(polyoxyalkylene-, sulfo-containing, ionomers, amperometric lactate sensor employing tetrathiafulvalene in Nafion film as electron shuttle)

IT Ionomers
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(polyoxyalkylenes, fluorine- and sulfo-containing, amperometric lactate sensor employing tetrathiafulvalene in Nafion film as electron shuttle)

IT 50-21-5, analysis 113-21-3, Lactate, analysis
RL: ANT (Analyte); ANST (Analytical study)
(amperometric lactate sensor employing tetrathiafulvalene in Nafion film as electron shuttle)

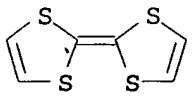
IT **31366-25-3**, Tetrathiafulvalene
RL: ARU (Analytical role, unclassified); **DEV (Device component use)**; ANST (Analytical study); USES (Uses)
(amperometric lactate sensor employing tetrathiafulvalene in Nafion film as electron shuttle)

IT 7440-44-0, Carbon, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(glassy; in amperometric lactate sensor employing tetrathiafulvalene in Nafion film as electron shuttle)

IT 9028-72-2, Lactate oxidase
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(in amperometric lactate sensor employing tetrathiafulvalene in Nafion film as electron shuttle)

IT **31366-25-3**, Tetrathiafulvalene
RL: ARU (Analytical role, unclassified); **DEV (Device component use)**; ANST (Analytical study); USES (Uses)
(amperometric lactate sensor employing tetrathiafulvalene in Nafion film as electron shuttle)

RN 31366-25-3 HCAPLUS
CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



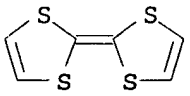
L28 ANSWER 31 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1994:696246 HCAPLUS
DN 121:296246
TI Amperometric mediated biosensor based on tetrathiafulvalene-Nafion chemically modified graphite **electrode**
AU Haiying, Liu; Hui, Li; Jiaqi, Deng
CS Dep. Chem., Fudan Univ., Shanghai, 200433, Peop. Rep. China
SO Fenxi Huaxue (1994), 22(9), 882-6
CODEN: FHHHDT; ISSN: 0253-3820
PB Zhongguo Huaxuehui "Fenxi Huaxue" Bianji Weiyuanhui
DT Journal
LA Chinese
AB An amperometric mediated biosensor for glucose was developed by using bovine serum albumin and glutaraldehyde as crosslinker to immobilize glucose oxidase on a Nafion-tetrathiafulvalene (TTF) chemical modified graphite **electrode.** It is further coated by Nafion, which is an aqueous solution made from Nafion methanol solution The inner Nafion membrane can avoid leakage of TTF and prevent electroactive species from oxidizing on the **electrode**; the outer Nafion coating is not detrimental to the enzyme but further forestalls electrochem. active anionic interferents such as ascorbate and urate from reaching the **electrode** and protects the biosensor from fouling agents. It was proved that both TTF+ and TTF2+ can oxidize FADH2 of glucose oxidase. The biosensor responds rapidly to glucose in <30 s, and its calibration plot is linear from 5.0 + 10-4 to 1.05 + 10-2 mol/L.
CC 9-1 (Biochemical Methods)
Section cross-reference(s): **72**
ST glucose detn amperometric enzyme **electrode**
IT **Electrodes**
(bio-, enzyme, glucose-selective, amperometric glucose-selective enzyme **electrode** based on tetrathiafulvalene-Nafion-modified graphite **electrode**)
IT Polyoxyalkylenes, uses
RL: DEV (Device component use); NUU (Other use, unclassified); USES (Uses)
(fluorine- and sulfo-containing, ionomers, amperometric glucose-selective enzyme **electrode** based on tetrathiafulvalene-Nafion-modified graphite **electrode**)
IT Fluoropolymers
RL: DEV (Device component use); NUU (Other use, unclassified); USES (Uses)
(polyoxyalkylene-, sulfo-containing, ionomers, amperometric glucose-selective enzyme **electrode** based on tetrathiafulvalene-Nafion-modified graphite **electrode**)
IT Ionomers
RL: DEV (Device component use); NUU (Other use, unclassified); USES (Uses)
(polyoxyalkylenes, fluorine- and sulfo-containing, amperometric glucose-selective enzyme **electrode** based on tetrathiafulvalene-Nafion-modified graphite **electrode**)
IT 50-99-7, D Glucose, analysis
RL: ANT (Analyte); ANST (Analytical study)
(amperometric glucose-selective enzyme **electrode** based on tetrathiafulvalene-Nafion-modified graphite **electrode**)
IT 9001-37-0D, Glucose oxidase, immobilized

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(amperometric glucose-selective enzyme **electrode** based on tetrathiafulvalene-Nafion-modified graphite **electrode**)

IT 7782-42-5, Graphite, uses **31366-25-3**, Tetrathiafulvalene
RL: **DEV (Device component use)**; NUU (Other use, unclassified); USES (Uses)
(amperometric glucose-selective enzyme **electrode** based on tetrathiafulvalene-Nafion-modified graphite **electrode**)

IT **31366-25-3**, Tetrathiafulvalene
RL: **DEV (Device component use)**; NUU (Other use, unclassified); USES (Uses)
(amperometric glucose-selective enzyme **electrode** based on tetrathiafulvalene-Nafion-modified graphite **electrode**)

RN 31366-25-3 HCAPLUS
CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)

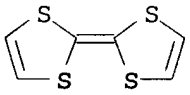


L28 ANSWER 32 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1994:675886 HCAPLUS
DN 121:275886
TI Inhibition of Charge Transport by Ethidium Bromide and DNA Gating of Ion Motion at TCNQ Conducting Salt **Electrodes**
AU Evans, C. Donald; Chambers, James Q.
CS Department of Chemistry, University of Tennessee, Knoxville, TN, 37996, USA
SO Journal of the American Chemical Society (1994), 116(24), 11052-8
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA English
AB Treatment of TCNQ thin film **electrodes** derived either from 9-aminoacridinium(TCNQ)2 or from TTF-TCNQ with ethidium bromide solution produced hydrophobic surface layers that inhibited ion motion. The passivation process was shown by electrochem. quartz crystal microgravimetry (EQCM) to involve an ion exchange step and subsequent anodic oxidation coupled to the unidirectional ejection of countercations from the films. The quartz crystal microgravimetry (QCM) frequency of the passivated films exhibited a slow increase which was attributed to loss of water and/or disruption of the hydrogen bonding network at the ethidium-modified interface. The aqueous solution electroactivity of the ethidium-modified films could be restored by exposure of the surfaces to dilute solns. of herring testes DNA, which turned on (or "gated") the square wave EQCM ion motion at these **electrodes.**
CC 9-7 (Biochemical Methods)
Section cross-reference(s): 6, **72**
ST TCNQ **electrode** ethidium bromide DNA gating
IT **Electrode** reaction
**Electrodes**
Passivation
(inhibition of charge transport by ethidium bromide and DNA gating of ion motion at TCNQ conducting salt **electrodes**)
IT Deoxyribonucleic acids
RL: PRP (Properties)
(inhibition of charge transport by ethidium bromide and DNA gating of ion motion at TCNQ conducting salt **electrodes**)

IT 90-45-9D, 9-Acridinamine, inium derivs. **40210-84-2**, TTF-TCNQ
RL: **DEV (Device component use)**; PRP (Properties); USES (Uses)
(inhibition of charge transport by ethidium bromide and DNA gating of ion motion at TCNQ conducting salt **electrodes**)
IT 1239-45-8, Ethidium bromide
RL: PRP (Properties)
(inhibition of charge transport by ethidium bromide and DNA gating of ion motion at TCNQ conducting salt **electrodes**)
IT **40210-84-2**, TTF-TCNQ
RL: **DEV (Device component use)**; PRP (Properties); USES (Uses)
(inhibition of charge transport by ethidium bromide and DNA gating of ion motion at TCNQ conducting salt **electrodes**)
RN 40210-84-2 HCAPLUS
CN Propanedinitrile, 2,2'-(2,5-cyclohexadiene-1,4-diylidene)bis-, compd. with 2-(1,3-dithiol-2-ylidene)-1,3-dithiole (1:1) (9CI) (CA INDEX NAME)

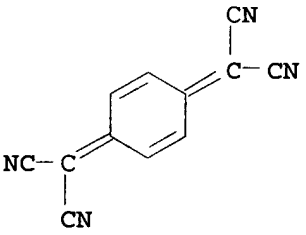
CM 1

CRN 31366-25-3
CMF C6 H4 S4



CM 2

CRN 1518-16-7
CMF C12 H4 N4



L28 ANSWER 33 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1992:587469 HCAPLUS
DN 117:187469
TI Enzyme **electrode** based on an artificial electron acceptor mediator
AU Hu, Jun
CS Shanghai Inst. Ind. Microbiol., Shanghai, Peop. Rep. China
SO Gongye Weishengwu (1992), 22(3), 16-18
CODEN: GOWEEK; ISSN: 1001-6678
DT Journal
LA Chinese
AB A new artificial conductive mediator tetrathiafulvalene (TTF) is described which was used as an electron carrier for replacing O, the natural electron acceptor in the redox reaction. Both glucose oxidase and TTF were absorbed on the surface of C **electrode**; thus the glucose

substrate was determined amperometrically. The linearity of substrate was in the range 0-30 mmol/L. The response of the enzyme **electrode**, pH profile, the effect of temperature on the enzyme **electrode**, and the characteristics of the TTF-modified enzyme **electrode** were also presented.

CC 9-1 (Biochemical Methods)
Section cross-reference(s): **72**

ST glucose enzyme **electrode** tetrathiafulvalene

IT **Electrodes**
(bio-, enzyme, glucose-selective, amperometric, tetrathiafulvalene in)

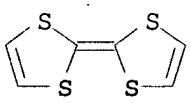
IT 50-99-7, Glucose, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, enzyme **electrode** preparation for)

IT 9001-37-0D, Glucose oxidase, immobilized **31366-25-3**
RL: **DEV (Device component use)**; USES (Uses)
(glucose-selective **electrode** containing)

IT **31366-25-3**
RL: **DEV (Device component use)**; USES (Uses)
(glucose-selective **electrode** containing)

RN 31366-25-3 HCAPLUS

CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)




L28 ANSWER 34 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1990:154555 HCAPLUS

DN 112:154555

TI Conducting organic salt amperometric glucose sensor in continuous-flow monitoring using a wall-jet cell

AU Gunasingham, Hari; Tan, Chin Huat

CS Dep. Chem., Natl. Univ. Singapore, Singapore, 0511, Singapore

SO Analytica Chimica Acta (1990), 229(1), 83-91
CODEN: ACACAM; ISSN: 0003-2670

DT Journal

LA English

AB A simplified method for preparing tetrathiafulvalene-7,7,8,8-tetracyanoquinodimethane-based amperometric enzyme **electrodes** is described. The **electrode** is suitable for the routine monitoring of blood glucose levels. Using the wall-jet cell geometry, the steady-state mode gave more consistent results than the flow-injection mode because of variability in the blood matrix from patient to patient. The results show that, for the wall-jet cell geometry, due consideration must be given to the orientation of the enzyme **electrode** with resp. to the jet inlet. High precision (<2% relative standard deviation) and accuracy are then feasible.

CC 9-1 (Biochemical Methods)
Section cross-reference(s): **72**

ST blood glucose detn **electrode**; amperometric enzyme **electrode** glucose

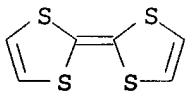
IT Blood analysis
(glucose determination in, conducting organic salt amperometric enzyme **electrode** for)

IT **Electrodes**
(bio-, enzyme, glucose-selective, amperometric, conducting organic salt containing, in continuous-flow monitoring using wall-jet cell)

IT 50-99-7
RL: ANST (Analytical study)
(blood analysis, glucose determination in, conducting organic salt amperometric
enzyme **electrode** for)
IT 50-99-7, Glucose, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, conducting organic salt amperometric enzyme **electrode** for)
IT **40210-84-2**
RL: **DEV (Device component use)**; USES (Uses)
(enzyme **electrode** containing, for glucose determination)
IT **40210-84-2**
RL: **DEV (Device component use)**; USES (Uses)
(enzyme **electrode** containing, for glucose determination)
RN 40210-84-2 HCAPLUS
CN Propanedinitrile, 2,2'-(2,5-cyclohexadiene-1,4-diylidene)bis-, compd. with 2-(1,3-dithiol-2-ylidene)-1,3-dithiole (1:1) (9CI) (CA INDEX NAME)

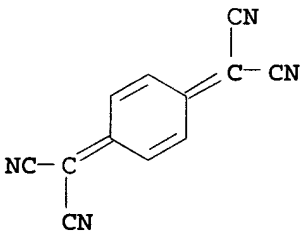
CM 1

CRN 31366-25-3
CMF C6 H4 S4



CM 2

CRN 1518-16-7
CMF C12 H4 N4



L28 ANSWER 35 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1987:98716 HCAPLUS
DN 106:98716
TI An amperometric enzyme **electrode** for monitoring brain glucose in the freely moving rat
AU Boutelle, Martyn G.; Stanford, Clare; Fillenz, Marianne; Albery, W. John; Bartlett, Phillip N.
CS Univ. Lab. Physiol., Oxford, UK
SO Neuroscience Letters (1986), 72(3), 283-8
CODEN: NELED5; ISSN: 0304-3940
DT Journal
LA English

AB Brain glucose was measured with an amperometric enzyme **electrode** using glucose oxidase (EC 1.1.3.4) irreversibly adsorbed onto an organic conducting salt (TTF+ TCNQ-) . The responses of the **electrode** and its stability both in vitro and in vivo are described. Parallel changes in brain glucose and blood glucose (measured in samples from an implanted intra-atrial cannula) following injections of insulin are reported.

CC 9-1 (Biochemical Methods)
Section cross-reference(s): 13, **72**

ST brain glucose detn enzyme **electrode**; amperometric enzyme **electrode** glucose; biosensor glucose

IT Brain, composition
(glucose determination in, enzyme **electrode** for)

IT **Electrodes**
(bio-, enzyme, glucose-selective, amperometric, with immobilized glucose oxidase and organic conducting salt, for brain anal.)

IT **40210-84-2**
RL: **DEV (Device component use)**; USES (Uses)
(amperometric enzyme **electrode** containing, for brain glucose determination)

IT 50-99-7, Glucose, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in brain, enzyme **electrode** for)

IT 9004-10-8, Insulin, biological studies
RL: BIOL (Biological study)
(glucose of brain response to, **electrode** for study of)

IT 9001-37-0, Glucose oxidase
RL: USES (Uses)
(immobilized, in amperometric **electrode** with organic conducting salt, for glucose determination in brain)

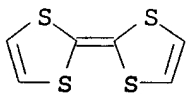
IT **40210-84-2**
RL: **DEV (Device component use)**; USES (Uses)
(amperometric enzyme **electrode** containing, for brain glucose determination)

RN 40210-84-2 HCAPLUS

CN Propanedinitrile, 2,2'-(2,5-cyclohexadiene-1,4-diylidene)bis-, compd. with 2-(1,3-dithiol-2-ylidene)-1,3-dithiole (1:1) (9CI) (CA INDEX NAME)

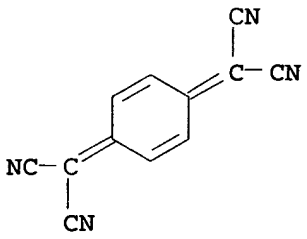
CM 1

CRN 31366-25-3
CMF C6 H4 S4



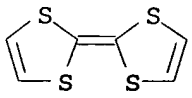
CM 2

CRN 1518-16-7
CMF C12 H4 N4



L28 ANSWER 36 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1985:424893 HCAPLUS
DN 103:24893
TI Effect of addition of an organic electronically conductive material on the photovoltaic cell using zinc(II)-tetraphenylporphrin
AU Yamamura, Soichiro; Kawai, Wasaburo
CS Gov. Ind. Res. Inst., Ikeda, 563, Japan
SO Nippon Kagaku Kaishi (1985), (4), 651-4
CODEN: NKAKB8; ISSN: 0369-4577
DT Journal
LA Japanese
AB A photovoltaic cell was constructed in which a polymeric membrane containing Zn(II)-tetraphenylporphyrin (Zn-TPP) [14074-80-7] was sandwiched between an In2O3 optically transparent **electrode** and a Pt-Pd **electrode.** The cell generated a photocurrent under visible-light irradiation Generation of the photocurrent was enhanced by the addition of an organic electronically conductive material, namely TTF-TCNQ charge-transfer complex. Since the fluorescence of Zn-TPP is quenched by the TTF-TCNQ complex, there is an interaction between the singlet excited state of Zn-TPP and the ground state of the TTF-TCNQ complex. The quenching-rate constant for the fluorescence of Zn-TPP by the TTF-TCNQ complex was 2.3 + 1010 dm3/mol-s. According to capacitance measurements, a Schottky-depletion region was formed in the polymeric membrane containing Zn-TPP and the TTF-TCNQ complex. The TTF-TCNQ complex can change both the membrane state and the interface state.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 73, 74
ST solar cell zinc tetraphenylporphyrin; indium oxide solar cell; TTF TCNQ solar cell; fluorescence quenching zinc tetraphenylporphyrin
IT Fluorescence quenching
(of zinc tetraphenylporphyrin by TCNQ-TTF charge-transfer complex)
IT Photoelectric devices, solar
(zinc tetraphenylporphyrin, performance of, effect of addition of organic elec. conductive material on)
IT 1312-43-2
RL: USES (Uses)
(photoelec. solar cell containing layer of, zinc tetraphenylporphyrin)
IT 1518-16-7D, charge-transfer complex with tetrathiafulvalene
**31366-25-3D**, charge-transfer complex with tetracyanoquinodimethane
RL: USES (Uses)
(photoelec. solar cells containing, zinc tetraphenylporphyrin, performance of)
IT 14074-80-7
RL: **DEV (Device component use)**; USES (Uses)
(photoelec. solar cells, performance of, effect of addition of organic elec. conductive material on)
IT **31366-25-3D**, charge-transfer complex with tetracyanoquinodimethane

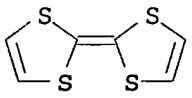
RL: USES (Uses)
(photoelec. solar cells containing, zinc tetraphenylporphyrin, performance of)
RN 31366-25-3 HCAPLUS
CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



L28 ANSWER 37 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1979:429584 HCAPLUS
DN 91:29584
TI The electrochemical behavior of organic semiconducting and conducting **electrodes** in aqueous media
AU Jaeger, Calvin D.
CS Univ. Texas, Austin, TX, USA
SO Journal of the Electrochemical Society (1979), 126(5), 205C-207C
CODEN: JESOAN; ISSN: 0013-4651
DT Journal
LA English
AB A cyclic voltammetric and IR study was made several organic materials such as TTF-TCNQ where TTF = tetrathiafulvalene and TCNQ = tetracyanoquinodimethane. The **electrodes** can be studied as compacted disks single crystals, or thin films and the potential limits of stability of the **electrodes** depended upon the donor or acceptor compound and the supporting electrolyte. These organic metallic compds. can be utilized as **electrodes** in aqueous media. Besides TTF-TCNQ, compds. studied included also TTT-TCNQ and NMP-TCNQ where TTT = tetrathiotetracene and NMP = N-methylphenazinium.
CC 72-11 (**Electrochemistry**)
ST organo metallic compd semiconductor **electrode**; thia fulvalene tetra semiconductor **electrode**; cyano quinodimethane semiconductor **electrode**
IT **Electrodes**
(organic, in aqueous media)
IT **Electrodes**
(semiconductive, in aqueous media)
IT 34504-21-7 **40210-84-2** 75482-05-2
RL: **DEV (Device component use)**; USES (Uses)
(**electrodes** containing, semiconducting, in aqueous media)
IT **40210-84-2**
RL: **DEV (Device component use)**; USES (Uses)
(**electrodes** containing, semiconducting, in aqueous media)
RN 40210-84-2 HCAPLUS
CN Propanedinitrile, 2,2'-(2,5-cyclohexadiene-1,4-diylidene)bis-, compd. with 2-(1,3-dithiol-2-ylidene)-1,3-dithiole (1:1) (9CI) (CA INDEX NAME)

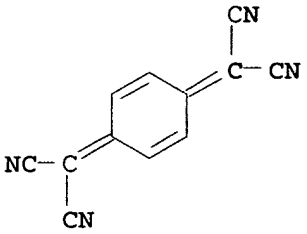
CM 1

CRN 31366-25-3
CMF C6 H4 S4



CM 2

CRN 1518-16-7
CMF C12 H4 N4



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